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RAIL-ROAD NEWS.

Railroad Crossings.

The number of accidents which occur on our railroads is very great in comparison with the accidents which take place on the railroads of Europe. This is not owing to the recklessness, as some would be apt to term it, of engineers or conductors; it is the fault of our railroad system. On Monday evening last week a terrible accident took place at the Waverly crossing, West Cambridge, on the Boston and Fitchburg Railroad. William Sawyer, his daughter, a young lady, and John Gibbs were killed, and Mrs. Sawyer dangerously injured. They were crossing the track in Mr. Sawyer's carriage, when the train came upon them at the rate of 40 miles per hour. It is not long since a Mrs. Eden and her daughter were killed in the same manner near Lexington, Ky. A great many such accidents have taken place during the past six months. All our common roads, which intersect our railroads, have no provision made against such accidents excepting the whistle of the locomotive, or the ringing of the engineers' bell. In England the railroads are well hedged in against such accidents; no common road being allowed openly to traverse a railroad. The fault of such accidents on our railroads belong to our railway system, not the management of the trains. It might do to prevent such evils to erect gates on the crossings, and to have them attended by guardsmen. This would be a very expensive system. Another plan is to have gates worked by self-acting rods and springs to be operated by the approaching train to close a gate and then to throw it open after the train had passed. There is a patent in existence for such an invention. Something at least should be done for an improvement of our railway system, and we think, if all the railroad companies in our country were to hold a convention this summer or next fall, and discuss such matters, great good would result from it.

A Convention of Railroad Directors.

A convention of Railroad Directors and Bridge Companies was held at Niagara Falls, two weeks ago, to settle permanently their plans for the construction of the Great Western and Rochester, Lockport and Niagara Falls Roads, and for building immediately a new and greatly enlarged suspension bridge, which is to connect these two great thoroughfares. It is not supposed that it is the intention of the companies to build this bridge for the passage of locomotive trains. Rail tracks will, however, be laid over it, on which will be passed baggage and freight cars by horses or stationary steam power. Its length will only be about 800 feet, and it is to be presumed that railway passengers will much prefer crossing it on foot to any other mode, because of the more satisfactory opportunity thereby afforded of contemplating the sublimity of the structure, and the magnificent gorge and torrent spanned by it.

Jenny Lind sailed from this city in the Atlantic, for Europe. We shall no more hear the song of the Nightingale of the North.

USHER'S ROTARY STEAM PLOW..---Fig. 1.

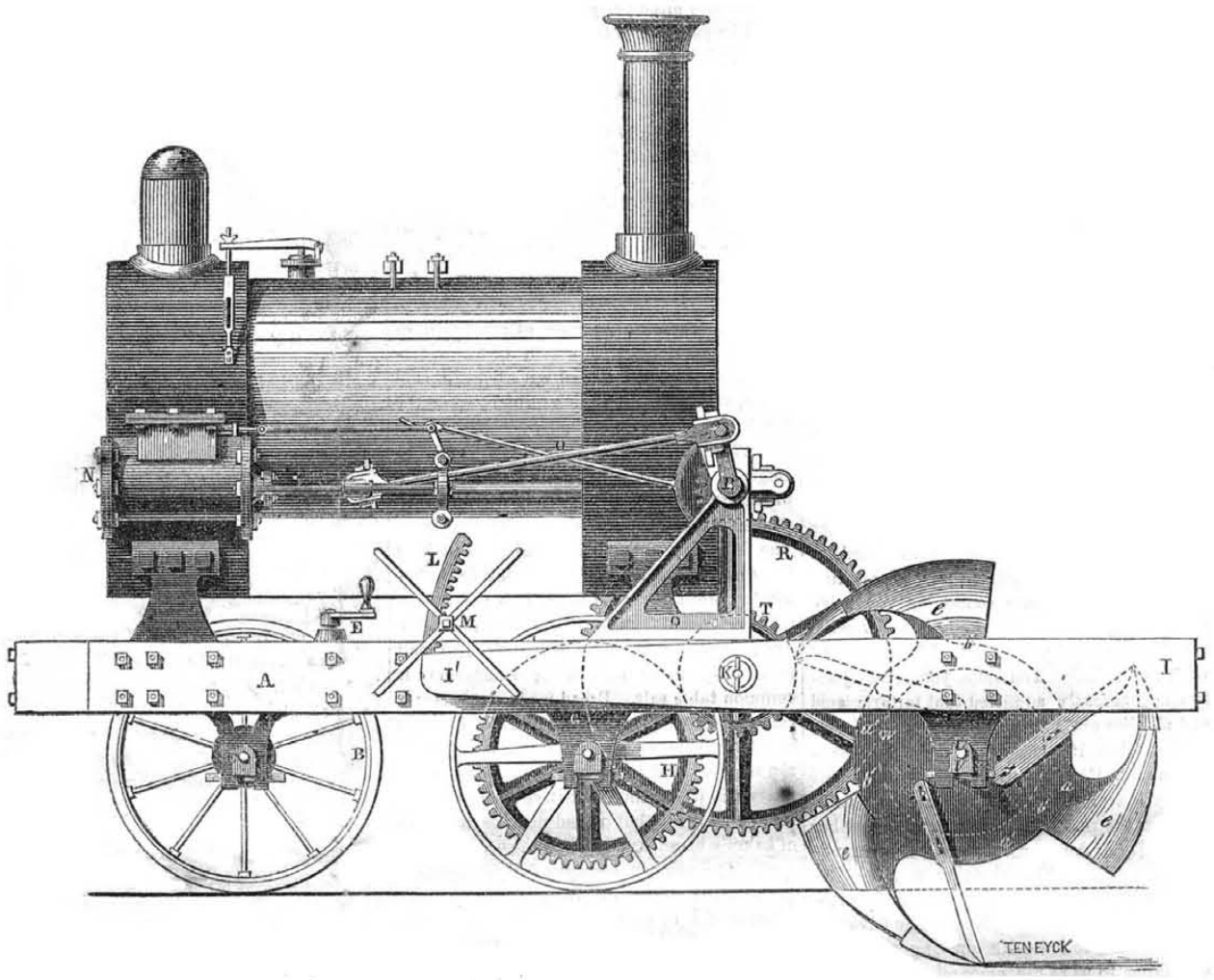
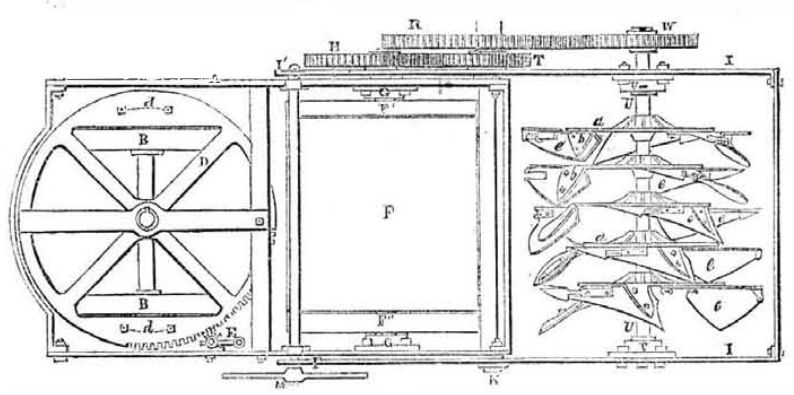


Figure 1 is a side elevation, with the nigh wheels removed, and figure 2 is a plan view with the engine and boiler removed, of the Rotary Steam Plow of James Usher, of Edinburgh, Scotland. It has been the subject of considerable eulogy in some of the foreign periodicals, and has been illustrated (on a much smaller scale, however, than we have done) in the "Illustrated London News," and the "Artizan;" and it has been fully described in the "Scottish Press." In this one machine there are five acting plows, as is represented in figure 2. Each plow, to act continuously, has three mould-boards and coulters on its axis, the one taking into the soil as the preceding one is rising out. The whole five plows are on one strong rotary shaft. A is the bed frame or carriage part; B represents the fore wheels, which revolve in bearings, C, attached to the swivel frame, D, fig. 2, which moves on the bolts, *d*, to make the machine turn round in a small space. A portion of the swivel frame, D, is toothed, and this is acted upon by the winch, E. The hind part of the carriage is supported upon the hollow cylinder, F, having wheels, F' F', similar to B B. The axle of this cylinder is supported in the bearings, G. This axle also carries at one extremity the large toothed wheel, H. I I is a movable lever frame supported on the shaft, K, as a fulcrum. The free ends of this lever frame are made with racks, L, which are concentric with K; these segments are acted upon by toothed pinions on the spindle, M, which, by the arms, elevates or depresses the hind part of the lever frame, and all that it carries, at the pleasure of the conductor. On the carriage is placed the locomotive boiler with its cylinders (one seen), N. The power of the engine is applied, through the rods, O, to the crank shaft, P, which is supported in standards, Q. On the shaft, P, there is a spur pinion, P'; this pinion, by taking into the teeth of the wheel, R, which is mounted on shaft K, gives motion to pinion T, on the same shaft. This pinion takes into the cog wheel, H, and gives action to the wheels of the carriage, thus moving the plow by a rotary progressive motion. The pinion, T, is made so as to be thrown out of gear with the driving wheel, H. W is a pinion (seen in dotted lines) which is driven by the cog wheel, R. This pinion is on the shaft, U, which is set in bearings, V, secured to the movable frame. On this shaft, U, are secured a series of plates, *b' b'*, which are formed in such a manner as to have affixed several plows to them. Each is formed with a strong boss at the centre, by which it is securely fixed to the shaft, U. Each plate has three projections *a*, which terminate radially, as shown. Upon the plates and projections thus shown, the tilting parts are securee. *e e e* are the mould-boards for turning the furrows; they are secured by screw bolts to the projections of the plates. Plow-points or shares are attached by bolts to the extremities of the mould-boards. A coulter is also set before each plow point. These plows are moved in a rotary direction by the wheel, R driving the pinion on shaft U.

Figure 2.



This rotary steam plow shows at once the great difference between the farmers in Britain and our agriculturists. This plow weighs five tons, and the engines are nominally ten horse-power; it can be worked with five, four, three, or two plows. When worked with four plows, it turned over a breadth of three feet at once, and stirred the ground so as to make it resemble spaded earth; it moves at a good pace, being no less a velocity than 2,550 yards per hour, plowing about six acres in one day. The price of it was £300, or $1,455. It requires an engineer and two laborers to attend it. Such a plow will not be introduced into America; it is too large and too expensive, but it will show our farmers what is doing in some other parts of the world to make steam power subservient to man in tilling the earth. It will, no doubt, also afford many good hints to some of our inventors, for steam power will yet be employed more extensively for agricultural purposes in our country than it is at present, especially in the West and South West regions. This plow, when not tilling, can be thrown out of gear with the engine, which can then be made, by pulley and belt, to drive a threshing machine and many other machines.

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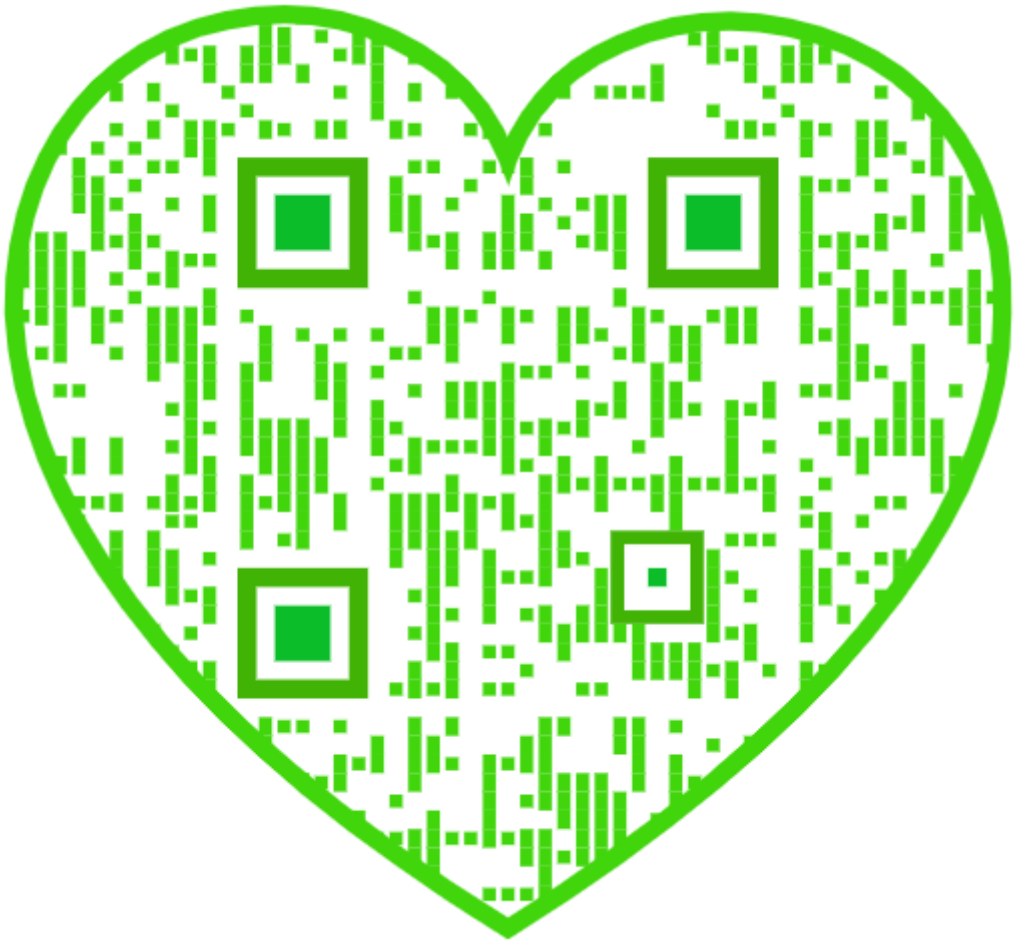

MISCELLANEOUS.

Self-Raising Flour.

MESSRS. EDITORS—In No. 36, Vol. 7, of your very valuable paper, we observe you have been pleased to notice the late important improvement of our Patent Self-Raising Flour, in which notice you seem to question whether this article of flour has really ever been patented. For you say that you "are not aware of any patent ever having been issued for the said flour, and we presume the public have given it the name of *patent*, not the manufacturers. It is not very safe to use the word 'patent' on an article if it has not been patented."

The position of our firm before the commercial community and the public, as well as the sincere regard in which we hold your numerous scientific readers, makes it necessary, after the appearance of your publication, distinctly to avow, under our own names, in your columns, that no patent in the United States is more official and valid than that secured on the Self-Raising Flour. The Records of the Patent Office, of May, 1849, will fully establish this fact. It is also patented in Ireland, France, Holland, and Belgium; the English patent having been duly issued as early as March, 1845.

It is not for the purpose of complaining of the general tenor of your article, or to trespass on the area of freedom of the public press, that we are impelled into your columns, but to set the public right upon a subject that nearly concerns their health and welfare; and, as you yourselves have stated, that "as this kind of flour is coming into somewhat extensive use, it is right the public should know what the effervescing materials are which are mixed with the flour." You have, yourselves, justly end generously admitted that tartaric acid and alkalies are very excellent and safe, yet adding, "but if alum be used, a trick common among English millers, we deprecate its use." It scarcely seems necessary for us to disclaim the resort to *tricks* of any kind, either of English or American millers, yet we frankly here avow that no alum or other deleterious substance is ever used in any article manufactured at the Croton Mills. The advancement of the public health proving as equally gratifying to us as the enjoyment of the profits of our labor.

The Self-Raising Flour, then, being patented, and thus partially shielded from fraudulent imitations, no motive exists for us to withhold from the public that the effervescing materials are tartaric acid and bicarbonate of soda of the purest and most unadulterated quality, with due proportions of the finest sugar and salt. That these articles are not only innocent and harmless, but in a great degree conducive to health, and promoting a gradual and easy digestion, we have the written testimony of over 50 of the medical faculty of this city to verify.

The method and proportions of these healthful ingredients, their comminution, dissemination, and mode of thorough incorporation with the flour, is of course exclusively our own affair. These articles, used by inexperienced or unscientific persons might possibly impair the health of those who may partake of food with which these chemicals are commingled. But the due care and attention exercised under the especial supervision of the patentee, and the very small proportion of the ingredients used (being less than 1½ per cent.) warrants the assertion that bread is rendered more porous, palatable, and digestible by it; and that no one can have the slightest objection freely to use it thus prepared.

Dr. Lewis C. Beck, of Rutger's College, N. J., in a letter addressed to us, says of the Self-Raising Flour, "I have made sundry trials of it, and find it to come up to the character given in your printed circulars. The only difficulty I see of complete success, is carelessness in the preparation and fraudulent imitations."

We entertain no doubt but the Self-Raising Flour will ultimately supersede the use of all other flours which have to be raised by yeasty fermentation. The labor it saves, too, by its capability of being immediately baked as soon as mixed into dough by the addition of cold water only, renders it of invaluable moment to the over-wrought laborers and housewives of both city and country.

With an apology to you, Messrs. Editors, for the necessity of the length of this communication, called out by your own article being written before you were in possession of all the facts relating to this great improvement of the age, We remain, yours truly,

HECKER & BROTHER.

REMARKS.—We were not aware of Hecker & Brother being the owners of the Jones' patent, the claim of which is "mixing the acid and alkali with the flour in a *dry* state;" sugar and salt is mentioned in the specification, but the claim is principally for the acid and alkali. The patent was taken out in England on March 13, 1845, by Henry Jones, of Bristol, and in the United States on May 1st, 1849, and assigned to John Fowler, of this city. It has long been known to every chemist that carbonic acid gas was the one produced by fermentation, and that the gluten of flour, by forming a skin to the dough of bread, retained the gas, which, by this means, swelled, or, as it is technically termed, *lightened* the bread in the act of baking. Thus our knowledge of chemistry has enabled us, for twenty years, to tell that the sub-carbonate of magnesia, or soda, mixed along with cream of tartar, tartaric acid, &c., and mixed with flour in cold water, would act as a quick ferment when the dough was placed in an oven. We know that, in 1837, a Mr. Whiting took out a patent in England for hydro-chloric acid and soda as a substitute for yeast, but this was different from mixing a dry acid and alkali with the flour. The following receipts have also been long known and used for making quick or unfermented bread:—"good flour, 1 lb.; bi-carbonate of soda, 40 grains; cold water, half a pint; muriatic acid, 50 drops." The salt formed by these fermenting substances, is common table salt. Bread made by this receipt was attempted to be introduced into this city two years ago. Such bread had a great run in London at one time, as some great chemists said it was more nutritive than the yeast fermented bread, but it had not the fine taste of baker's bread, and it failed of success in our city. The famous egg powder, for making biscuits, is composed of 56 parts, by weight, of carbonate of soda, 28 of tartaric acid, 112 of flour—all colored yellow with turmeric, to gull the people respecting the eggs. The mixing of the bicarbonate of magnesia, with flour in a dry state, was practiced many times, as long ago as we can remember, but the mixing of the acid and alkali with the flour in a dry state, is new, we believe, but the principle of action is old and well known.

As it respects the use of alum in bread, *respectable* bakers in London used it, and some chemists assumed that the small quantity in each loaf could do no harm. The use of *alum* however, and any other mixture but yeast, except by liberty of the Assize, in bread, is prohibited by a statute of Geo. III., which is a dead letter in England.

Messrs. Hecker & Brother will see, by another letter in our columns, that it was a proper and just way for them to send us the above, it is a straight-forward, simple, and manly way of meeting any assertion which may be set up against their self-raising flour, and it will throw light on the minds of many, and this was required. Hecker & Brother have the name and the character of manufacturing and selling the very best quality of flour, and we have never known an instance to the contrary.

Self-Raising Flour.

MESSRS. EDITORS—In the "Scientific American" of the 22nd inst., I notice you speak in advocating terms of the "Self-raising Flour," manufactured in New York. This flour, when first introduced, met with many consumers, and was called "first-rate," as most new articles are. I wish to undeceive you and the public, by saying that I believe this self-raising flour can be bought as low as from 20 to 24 shillings per barrel, and is nothing more than sour flour, only fit to make starch of—it is chemicized (allow me the term) to destroy the excess of acid and produce artificial raising, and any person continuing to use it might as well take as much slow poison. I know in one family, where only 28 lbs. were consumed in eight days, it made them all sick, although I told them it would, notwithstanding it was so handy to use. To make this "puff" worse, it is charged 12 per cent. more than the best flour. All artificial raisings destroy the nice flavor of good flour, disorders the stomach, weakens the digestive organs, brings on dyspepsia, shortens life, and renders the time we do live miserable; therefore use good flour at a less price, ferment with common yeast, but commence the operation half an hour sooner.

H. A. SMITH, North 2nd st., Williamsburgh.

[Friend Smith would see that we did not advocate *the* self-raising flour, but only believed it would be good if the *raising* materials were healthy. We have no conception of sour flour being used. In alluding to the said article of food, our object was to do good, by drawing out such information as that furnished by our correspondents.

Overman's Metallurgy.

This is a large volume of 740 pages, published by D. Appleton & Co., this city. The author of it, Frederick Overman, is no more; he died on the 7th of last January, in Philadelphia, from the effects of arsenited hydrogen, inhaled while engaged in a chemical analysis. One hundred and fifty pages of this work are devoted to mining, as connected with the metals. The subject is well illustrated. The operations of reducing the ores are very minutely described, also the treating of metals, all of which processes are illustrated with 377 wood engravings. It is an entirely different work from that on the "Manufacture of Iron," published by Henry C. Baird a few years ago. This work contains more information on metallurgy, we believe, than any work ever published in our country. A short biography of Overman is contained in the "Preface." As was known to us, from a perusal, at one time, of some of his manuscript, he was a German; his native place was lovely Alberfelt. His parents were humble, and he was first bound to mercantile pursuits, but this was not the life suitable for one who had such a hungering and thirsting after science. He went to Berlin, and became a pupil of the Royal Polytechnic Institute, and while there his talents were appreciated, and he became acquainted with some of the most eminent men in that city, including Alexander Von Humboldt. He conducted, at one time, the great engineering establishment at Chemnitz, in Saxony, and was once in the employ of Austria, for ascertaining the industrial resources of that country. He came to the United States in 1842, and during the past four years was principally engaged in technological writings. Such men do great good to our country; we have his researches, and all the practical information attained by him in Europe during many years of toil and study. This is the boon which many intelligent foreigners, like him, confer upon our country, many of whom live to reap the reward of their toil here, a thing they never could have done in their own loved but still oppressed lands. Overman, however, was not permitted to do this; he died at the vigorous age of 49 years. But it is well; He who worketh as He willeth gave him to the world and then took him away; and so far as science is concerned, he lived for some purpose; he fulfilled his destiny; he has left us some monuments of his labors, and his last work is no doubt his greatest and best.

Trial of Fire Engines.

A friendly trial of fire-engines took place on Monday afternoon, in Brooklyn; the engines were Nos. 5 and 16. The former was built in New York, by James Smith, the latter was built at Pawtucket, R. I. In two trials to test which threw the greatest quantity of water, No. 5 beat No. 16 by eight and two-thirds pails. The engines changed places in these trials, the one supplying the other. They then tried which of them could throw the highest stream, by playing to the top of a liberty pole, 206 feet high, when it was found that No. 5 had again the advantage of about from five to ten feet. In testing the merits of fire engines in this manner, success depends as much on the management as the capacity of an engine. The way to have tested which of them was the most capable of throwing the greatest amount of water in a given time, was to have made a certain number of strokes in a given time, and then measured the quantity of water.

The New Found Lake.

Some of the Eastern papers doubt the statement, recently published, says the Buffalo Commercial Advertiser, of a newly discovered lake, of considerable size, within fifteen or twenty miles of the falls of St. Anthony.—The St. Anthony Express gives a circumstantial account of the discovery, which we append:—

"Calvin A Tuttle and J. H. Stevens, two of the oldest and most reliable settlers in Minnesota, together with several others, including the writer hereof, some two weeks since, spent three days in the exploration of this lake. They found it to be from thirty to forty miles in width, containing an area of four hundred and fifty square miles. They also found numerous islands in this lake, many of which they visited; and one in particular, that will be found, on survey, to measure full three thousand acres.

Wonderful Discovery.

The Fairmount, (Va.) True Virginian says:

"We are informed by Col. Haymond and others, that a portion of a regularly Macadamized road has been discovered on the opposite side of the river from this place. We have not seen it ourselves, but learn that it extends pretty much along the bank of the river. Its width is about 16 feet, and the track well graded. The bed of stone seems to be about two inches thick, and made precisely after the plan of our Macadamized roads. The discovery was made by the washing away of a hill-side, which partially covered the road. When and by what race of people this road was made is unknown at the present day, but it gives evidence of the existence of a population here at some former age of the world, as far advanced in civilization, or at least in the art of road making, as ourselves. There was found in the bed of the road a stump of the chestnut tree, which was found to be about 150 years old at least and how much older our informant could not tell, as the stump was hollow."

[We have oftentimes seen round stones deeply imbedded in what is called "*hard pan*" stratum, and so thick that they looked like an old Macadamized road; but they were merely hard worn water courses of the olden time, never made by mortal hands.

A Relic of a By-Gone Age.

A few days ago a powerful blast was made in the rock at Meeting House Hill, in Dorchester, a few rods south of Rev. Mr. Hall's meeting house. The blast threw out an immense mass of rock, some of the pieces weighing several tons and scattered small fragments in all directions. Among them was picked up a metallic vessel in two parts, rent assunder by the explosion. On putting the two parts together it formed a bell-shaped vessel, 4½ inches high, 6½ inches at the base 2½ inches at the top, and about an eighth of an inch in thickness. The body of this vessel resembles zinc in color, or a composition metal, in which there is a considerable portion of silver. On the sides there are six figures of a flower, or bouquet, beautifully inlaid with pure silver, and around the lower part of the vessel a vine, or wreath, inlaid also with silver. The chasing, carving, and inlaying are exquisitely done by the art of some cunning workman. This curious and unknown vessel was blown out of the solid pudding stone, fifteen feet below the surface. It is now in the possession of Mr. John Kettell. Dr. J. V. C. Smith, who has recently travelled in the East, and examined hundreds of curious domestic utensils, and has drawings of them, has never seen anything resembling this. He has taken a drawing and accurate dimensions of it, to be submitted to the scientific. There is no doubt but that this curiosity was blown out of the rock, as above stated; but will Professor Agassiz, or some other scientific man please to tell us how it came there? The matter is worthy of investigation, as there is no deception in the case.

[The above is from the Boston Transcript and the wonder to us is, how the Transcript can suppose Prof. Agassiz qualified to tell how it got there any more than John Doyle, the blacksmith. This is not a question of zoology, botany, or geology, but one relating to an antique metal vessel perhaps made by Tuba Cain, the first inhabitant of Dorchester.

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The River Amazon---A Great Project.

When Lieut. Maury says anything, everybody may be sure it is something new, something striking, something to the honor of himself, and to the benefit of his country. He has recently presented a singular memorial to the Senate and House of Representatives, which embraces new and varied information, and he proposes a new national enterprise, which, if carried ont, will give the United States an impetus in trade and commerce, and produce as decided an effect upon our national prosperity, as the possession of the East Indies has upon Britain. But let us quote some extracts from the memorial:

"On account of the currents which flow through, and the winds which blow over, the Gulf ot Mexico, the Gulf of Mexico is, for many of the practical purposes of commerce and navigation, a closed sea. Hence commercial men and navigators have maintained that the real outlet of the Mississippi river to the ocean is not at the Belize, but in the straits of Florida.

Similar agents have placed the commercial mouth of the Amazon, not where that river empties into the ocean, which is under the equator, but they have moved it far into the northern hemisphere, and placed it near the commercial gateway of our own Mississippi.

If the drift-wood of the Andes, in the interior of South America, be set afloat upon the head waters ot the Amazon, and if another log be telled from the Rocky Mountains, in the interior of North America, and cast upon the head-waters of the Missouri, these two pieces of drift, taken to represent the currents of their rivers and into which they empty, will each, obeying the force of the winds and set of the currents, be drifted out upon the broad ocean through the Florida pass.

The prevailing winds at the mouth of the Amazon are S. E. trade winds, and no vessel coming out of the mouth ot that river can stand to the southward on account of the land, nor to the eastward on account of the winds and currents, both of which are directly in the teeth of all sailing vessels that attempt to steer such courses.

Passing a few leagues to the north, the outward bound Amazonian then enters the region of the N. E. trade winds, which compel her, unless she be bound into the Caribbean sea, to stretch off to the northward and westward until she has passed through the region of the N. E. trades, and gained the parallel of 25° or 30° north, by which time she finds herself off our own coast.

Now, this is the course of all vessels under canvass from the Amazon, whether they are bound to the Rio de Janeiro, in Brazil, to India, or to Africa, or any of the markets of the Pacific around Cape Horn, or to the commercial marts of Europe. Be their destination what it may, unless it be along the Spanish main or through the Caribbean sea, they must first steer north to cross the belt of N. E. trades, and in doing so they must pass our doors.

Therefore, for the peaceful and practical purposes ot commerce and navigation, there is but one highway from the mouth of the Amazon. On that way the southern Atlantic ports ot the United States occupy the position of half-way houses on the great market-way that is some day to lead from the valley of the Amazon to the rest of the world. The market way we overlook. The winds and the waves have placed keys of it in our hands. Let us not, by non-use, suffer it to fall into the hands of others.

If we regard the whole continent of America at one view, we observe that in the equatorial regions it is nearly cut in. twain to receive an arm of the sea, skirted on the east by the chain of islands, the Great and Little Antiles, which extend from the peninsula of Florida on the north, to the mouth of the Orinoco on the south; that this land-locked arm of the sea is separated from the Pacific on the west by a narrow neck ot continent called "the Isthmus." On the north this same arm of the sea receives the drainage ot the valley of the Rio Grande, the Mississippi and the Alabama rivers; on the south the surplus waters of the Amazon, the Orinoco, the Magdalena, and Atrato, are emptied into it also. This sheet of salt water may, therefore, be treated of as an expansion of the Mississippi on the north, and ot the Amazon on the south.

Regarding this magnificent marine basin as a commercial receptacle, we may search the world in vain for another such feature in physical geography wherewith to compare it. It is unique. And for its commercial capabilities, it must for ever remain unsurpassed and unequalled.

The valley of the Mississippi extends, according to the computation of physical geographers, over an area of 982,000 square miles, that of the Amazon and its confluents, with the Orinoco as one of them, embraces that vast area more than twice over. The great Amazonia valley is said by the same authority to cover an area of upwards of two millions of square miles in extent.

The Mississippi river is computed to afford a littoral navigation of 15,000 miles in length, some put it down as high as 20,000. But the Amazon and its majestic tributaries wind through an inland navigation of such an extent that, if stretched out in one line, its length would be enough to encircle the earth three times. It is set down as high as 80,000 miles. The Amazon is said to be navigable for vessels of the largest class up to the foot of the Andes. The Pennsylvania 74 may ascend that high.

And so traversed with navigable streams and water-courses is the great Atlantic slope ot South America, that there are in it no less than 1,500 miles of "furos" or natural canals, through which it is practicable for vessels to cross from one river over into another.

Were this valley settled upon and subdued to cultivation, "the Indies," in a commercial sense, would thereby be lifted up and placed at our doors, for all the productions of the East flourish there; and so jealous and afraid of such result was Portugal in her day, of East India possessions and commerce, that by a royal ordinance it became unlawful to cultivate in the great Amazon basin a single drug, spice, or plant of East India growth or production.

The foundation of commerce rest upon diversity of climate; for without diversity of climate there can be no diversity of productions, and consequently no variety of produce, which begets barter, and thus gives rise to commerce.

Imagine an emigrant—a poor laboring man he may be—to arrive from the interior of Europe, as a settler in the valley of the Amazon. Where he was, his labor could but support himself in the most frugal manner, and he was then no customer of ours. But in his new home, where, with a teeming soil and fine climate responding to his husbandry, and where the labor of one day in seven is said to be enough to crown his board with plenty, he works with his wonted diligence, and out of his own produce—coffee it may be, or drugs, or spices, or gums, or cocoa, or rice, or tobacco, or some other of the great staples of that valley; but be it what it may, he has enough to give largely in exchange with us for all the manufactured articles, whether of fancy, necessity. or luxury, that he craves the most. In the long list of what the emigrant there will require of us may be included that great assortment of goods known as "Yankee notions;" also pickled beef and pork, hams and flour, butter, lard, and the like; for the climate of the Amazon is not favorable to the production and stowage of any of those things. It is particularly unfavorable to the curing of meats and the grinding of flour; it is also unfavorable for all in-door occupations. And in the settling up of the valley of the Amazon, considering that New York and Boston are but eighteen or twenty days under canvass from the mouth ot that river; considering that the winds are fair for going and free for coming, and that the Atlantic ports of the United States are the only market-places for which the winds are thus propitious—considering all the physical advantages which we thus enjoy, and regarding this immigrant as the type of a class—it may be expected, whenever the tide of immigration, guided and sustained by American enterprise and energy, shall begin to set into that valley, that New York and Boston, with the manufacturing States, will have to supply those people with every article of the loom or the shop, from the axe and the hoe up to gala dresses and river steamers.

The man, therefore, who in his native Europe could not buy a cent's worth of American produce, simply by being transferred as a settler in the valley of the Amazon becomes at once a producer, and one of the best customers to American merchants that it is possible for a commercial people to have; and Europe is ready, as soon as the American commerce, backed up by American energy, shall give the world tangible evidence of the riches and resources of that country, to pour forth its hordes into it.

American merchants, American ships, and American sailors, will therefore be the chief competitors for the fetching and carrying of all that trade to which, in process of time, two or three hundred millions of people in the valley of the Amazon, and which it is capable of sustaining, will give rise.

The commercial future of that valley is the most magnificent in the world.

It belongs mostly to Brazil, and our trade with Brazil is already greater than it is with any other country whatever, excepting only England and France.

From the United States to Rio the voyage is long and uncertain, and our merchants are falling into the habit of conducting their Brazilian correspondence through England. There is a monthly line of steamers thence to Rio; its time of going is 29 or 30 days; the average sailing passage from New York to Rio is from 40 to 50 days. Hence it is more convenient for the business man to send his letters via England.

Now, there is a line of steamers from Para, at the mouth of the Amazon, to Rio. A line from Norfolk to Para, equalling in speed the Collins line to Liverpool, would make the passage in eight or ten days. At the same rate the distance thence to Rio might be accomplished in another week or ten days, thus bringing that great commercial mart of South America within twenty instead of forty days of our business men.

All the lines of ocean mail steamers that have yet been directly encouraged by the United States government on the waters of the Atlantic have their terminus in New York.

No direct encouragement to steamship enterprise has been given by the government to any port south of New York.

Your memoralist is opposed to centralization, and therefore for this, as well as for other reasons, prays that Norfolk or Charleston, or some other southern Atlantic port, may be made the terminus of a line of United States mail steamships to Para, touching at Porto Rico and such other West India Islands as may be agreed upon."

This is truly a magnificent scheme, and we hope it will be carried out in the course of twelve months. We would like to have published all the momorial, but it is too long for our columns; we have, however, given its leading ideas. We are, generally speaking, more ignorant of our own continent than of either Europe or Asia. This will not be so after we get the line of steamers established to run to the mouth of the Amazon. Wherever the American goes all assumes a new aspect. What was California before it came into the possession of the United States? Nothing but a wild region with a miserable and sparse population. What is it now? a young giant encased in gold.

Mulching Potatoes.

For the purpose of directing attention to the subject in season, and inducing the trial of experiments, we give the substance of a mode of raising potatoes, as performed by three different farmers, by mulching copiously with straw. The land, prepared as usual, was laid off in rows two feet apart, manured in the furrows; the potatoes dropped and covered as usual, leaving a level surface, and straw then applied six inches deep. The straw kept the surface moist and mellow throughout a long drouth, and the crop was 300 bushels per acre, the tubers being of the finest quality, although potatoes were generally nearly destroyed by the rot. "What struck us as a peculiarity," says the editor, "was their singular smoothness, being quite as much so as apples. Mr. Somers laid his potato cuttings upon unplowed, unprepared ground, merely covering them with straw.—[Albany Cultivator.

For the Scientific American.

Correct Ideas about Compensating Pendulums.

I beg leave to occupy a small space in your valuable paper, to correct what I call an error in the construction of a compensating pendulum as described by Wm. E. Lukens, and I think it will not give isochronous results. A truly compensating pendulum preserves the distance between the centre of oscillation and the centre of suspension in all ordinary changes ot temperature, and in general the means used to preserve this distance, are attached to the centre of oscillation, and form a part of the "ball," but in Lukens' pendulum it appears that an attempt is made to effect compensation by altering the centre of motion with respect to the pendulum rod, and he has not shown how the piece of metal having the "slit" which determines the centre of motion, is kept at an unalterable distance from the top of the "wooden support," on which is erected the "rod of the same size, material and length of the pendulum rod," for it is very evident that if this distance be liable to alteration, the pendulum length will vary accordingly.

In Lukens' pendulum, if we suppose the centre of oscillation to be exactly opposite the top of the "wooden support," at any particular temperature, then it will be opposite at any other temperature, for if the supporting rod and the pendulum rod be of the same material and length, the downward expansion of the pendulum rod will equal the upward expansion of the supporting rod, and the result will be the same during contraction; this is very clear in Lukens' description, but he says nothing about the distance between the wooden support and the slit, nor the means by which that distance should be unalterably maintained.

The wooden or metallic fixtures used to secure the wooden support and the slit, must alter by change of temperature as well as the pendulum rod, and as long as these are without a compensating arrangement the pendulum cannot be isochronous. The imperfection, then, is in the want of an arrangement to preserve, invariable, the distance between the top of the wooden support and the slit, and a combination of parts to do this would be about as costly and as complex as the so-called *gridiron* arrangement, but this or the better plan, the mercurial compensator, may as well be applied to the pendulum rod at once, thus forming the best, simplest, and most effective isochronous pendulum. HALDE COOPER.

Baltimore, Md., 17th May, 1852.

[We have received a great number of communications on this subject, some of which are extremely well written, but we cannot afford any more room for them at present.

An Old Invention Revived.

In the "Scientific American" of May 1st, under the heading of "Recent Foreign Inventions," is a notice of one (patented) for "Delineating Objects," by James Palmer, of Paddington, Eng. However original such invention may be with Mr. P., he is not the first one. I have an old book, entitled "Philosophical experiments and observations ot the late eminent Dr. Robt. Hooke, and other eminent virtuosos in his time," published by W. Derham, London, in 1726, in which is published a communication to the Royal Society, by Dr. Hooke, Dec. 19, 1694, giving an account of the same thing, and accompanied with a copper-plate cut, representing the operation, looking through a glass, and on which he is drawing with a pencil the outlines of mountain scenery. JOHN P. NESSLE.

Albany, N. Y., May 27, 1852.

A Runaway Lake.

A short time ago a lake two miles and a half long, and located about eight miles from the village of Brighton, Canada, burst its banks and completely drained out the water on the neighboring land. The bank through which the water broke was about forty feet in height. The rush of water dug a channel twenty-five feet deep and one hundred feet wide for a length of two miles, uprooting forest trees, carrying away mill-dams, and drowning two men. Thus occurred the singular phenomenon ot a lake being dried in a few days. The work was done with astonishing rapidity, independent of the drainage system.

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NEW INVENTIONS.

Cutting Hand Rails by Machinery.

George B. Pullinger, of Philadelphia, has invented a new machine for cutting "hand-rails," and other irregular forms. There are two peculiar cutters set upon the upper ends of two vertical spindles, which are placed opposite to one another, with a space between them, for the rough piece of wood to be fed in. These cutters are of such a form—almost bell-shaped—as to cut the rough piece to the form of rail required. There are three feed cone pulleys employed, the lower one being made fast, and the two upper ones capable of reversing their places, for only two feed pulleys are in operation at once, and the upper ones are employed for guiding more than feeding. One side and top of a rail is finished by the passage of the stick through it at one operation, then it is put through again, when the top pulleys are reversed, and the rail is then finished. This machine is a very important invention, as it performs work which has hitherto been exclusively performed by hand labor. Measures have been taken to secure a patent.

Improvement in Bridges.

Benjamin C. Coghill, Oquawka, Illinois, has taken measures to secure a patent for an improvement in Bridges, the object of which is mainly to prevent them being carried away on our western rivers by freshets. In the West, where the banks of so many rivers and streams are very low, the bridges are sometimes carried away by the waters, which often rise to the height of many feet above the ordinary level, sweeping away the common bridges, and often leaving whole tracks of country destitute of facilities for crossing the said rivers. This bridge is constructed, with the object of holding the roadway and all the parts firm to the abutments, and the abutments permanent in their foundations. This is done by a peculiar framing confined to the earth for the abutments, and by braces and girts secured in such a way to the abutments as to render the structure proof against being floated off by the most powerful freshet.

Machine for Cutting and Bending Tin.

J. A. Jillson, of Poughkeepsie, N. Y., has invented an improvement in machines for cutting and bending tin for the covers and bottoms of pails, cups, and such-like vessels. The tin plate to be acted on is placed between two discs which are situated at the ends of two horizontal shafts, which vibrate in such a manner that the tin may be placed between the discs and secured by pressing the one disc against the other, which is termed the holder. The face of the holder is covered with tin to prevent it from marking the tin to be acted upon, and, at the same time, it produces sufficient adhesion between the shield and the tin, without much lateral pressure on the frame of the machine. The tin being placed between the discs, the shafts are made to revolve and the tin is cut in circular form by circular cutters, which are placed upon a carriage on the upper part of the frame. Rollers for bending the tin are also placed on the frame, and so arranged as to bend the edge, making the necessary ledge to overlap the body of the pail, cup, or other article. A movable gauge is placed some distance below the discs; it is governed by a spring, and is excellent for adjusting the tin.

Improved Capstan.

George Newcomb, of the city of New York, has taken measures to secure a patent for an improvement in Capstans for ships, which consists in applying power and communicating motion to a capstan by means of a horizontal shaft, which receives rotary motion through the action of a pair of levers hung loosely upon it, and which carry pawls engaging into toothed wheels made fast upon the shaft, this shaft carrying a bevel wheel gearing into another bevel wheel upon the capstan. The levers which carry the pawls have the power applied to them by another set of levers, which admit of the purchase being increased indefinitely. The object of the improvement is to economize space, and apply a greater power in a smaller space than can now be applied to the common capstan.

Paper Cutting Machine.

Thomas H. Dodge, of Nashua, N. H., has invented a very excellent machine for cutting paper for printing. A blade is made to receive a reciprocating side slanting and downward motion by bevel gearing, which is moved by simply turning a crank handle. This machine cuts both card boards and paper, and is exceedingly simple in arrangement and construction, and is allowed to be a good improvement on machines which have been in use for the same purpose.

Surgical Adjuster.

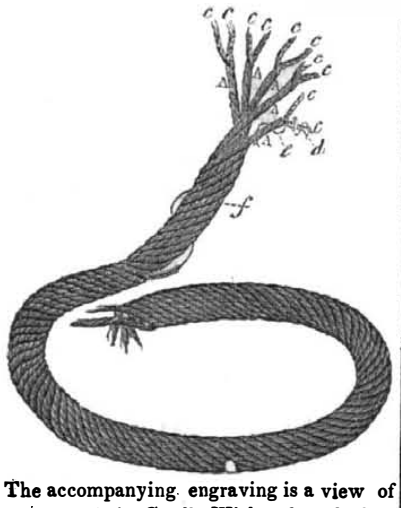
Dr. Zimri Hussey, of Chillicothe, Ohio, has invented a most excellent improvement, named the "Perfect Adjuster," to be employed in the surgical treatment of fracture and luxation. There is a seat piece with certain braces and appendages applied to the double inclined planes, for the purpose of rendering additional aid in the adjustment or reduction of the most difficult cases of fracture and luxation (dislocation) of the lower limbs.

WOODWARD'S PATENT WEEDING PLOW.

This figure is a perspective view of the Weeding Plow of Joshua Woodward, of Mittineague, West Springfield, Mass., whose improved Seed Planter was illustrated and described in the Scientific American of last week. E is a view of the angle plate of this weed plow. The patent for this improved agricultural machine was issued on the 9th of last March, (1852) The purpose of the machine, or plow, is to eradicate weeds from land with the least power applied, and in the most effectual manner. A is the beam; B are the handles; C is the share or mould board; these parts are similar to those in plows now in use. There is a piece placed on the upper side of the mould board, for insuring the turning of the weeds under, by its curving over. The sole, D, of the plow is flat and solid, and upon it is secured an angle plate, E, by proper bolts, so as to be shifted to and from the land side, to the angle required for the work to be done, the angle being determined according to the direction to be given to the mould-board. The part perpendicular to the sole of the plow is thin, so as to cut its way readily into the ground; by this means the ground is effectually cleaned of weeds in the following manner:—the plate, E, being set, it is made to enter the ground, while the edge of the *share* just skims below the surface, eradicating the weeds as nearly up to the corn as is desirable, but does not disturb the roots. The angle guide plate, F, causes the plow to run steady throughout its whole course. which is absolutely necessary, especially in ground which is liable to clog; any deviation, under these circumstances, at once prevents the mould-board or share from scouring. G is a brace. The upper part of the mould-board is made movable, and its rear end is projected beyond the cutter, so as to cover the weeds most effectually.

The claim of this patent is for the plate, E. constructed, arranged, and combined with the plow, as set forth. More information about rights, &c., may be obtained by letter addressed to the patentee and inventor. We would state that Mr. Woodward resided at Haverhill, N. H., when the patent was granted, since that time he has moved to the place designated above.

Wortendyke's Patent Countertwist Wick.



The accompanying engraving is a view of improvements in Candle Wicks, for which a patent was granted to Cornelius A. Wortendyke, of Godwinville, Bergen Co., N. J., on the 30th of last March (1852). The improved wick is made of any number of strands, and each strand is made of two or more separate yarns, the yarns being twisted in one direction, and the strands in the opposite direction, and the wick being twisted in a direction opposite to that of the strands, so that at each successive stage of the process of the manufacture, the twist is contrary to that which immediately precedes it.

The engraving represents a specimen of the improved wick made of five strands, A A representing them, each of which is formed of two yarns, *c c*. The yarns are first spun singly, in the common way of making candle wick, the twist being towards the left (looking towards the ends of the yarns), as indicated by the arrow, *d*; the yarns are then doubled and twisted to form a strand, the twist of the strand being towards the right, as indicated by the arrow, *e*. The five strands thus formed are then combined, to complete the wick by twisting them together towards the left, as indicated by the arrow, *f*. The twist in the successive stages of the process of forming the wick, are as described alternately to the left and to the right hand. Thus the improved wick is fully described, so that any person acquainted with the mode of making wick will fully understand it.

The object of this invention is to form a wick of any size, for tallow and other candles. This wick is prepared expressly for the machine mould lately introduced into practical use. It is of a soft and spongy texture, and has the appearance and answers the purpose of the braided wick. The process of twisting and countertwisting does not in the least prevent the strands of the wick from opening and imbibing the tallow freely, while, at the same time, it preserves its firmness, uniformity, and perfection. It works free and smooth in the moulds, and saves an immense labor in the manufacture of candles.

Further information can be obtained by addressing C. A. Wortendyke, patentee, or A. Wortendyke, manufacturer of the Patent Countertwist Wick, Godwinville, near Paterson, N. J.

New Gold Washer.

Alexander Barclay, of Newark, N. J., has taken measures to secure a patent for an improved gold washer. The object of the improvement is to stir the gold and earthy matter, in which it is found in a state of nature, more effectually, while washing, than is done by other machines, in order to a more perfect separation of the gold from earth matter, previous to the amalgamating process. He employs a hollow cylinder with beaters in it; water is admitted to the inside, and the lighter matters are made to rise and pass off through an annular space.

Tubular Ventilating Window Sash.

H. Strait, of Cincinnati, writes us he has invented a better plan for window ventilation than the one proposed in his last letter, of having perforated panes of glass. He now proposes tubular perforated window sash. The tubes can be plated to give them a finished appearance, and they will be fire-proof.

Rapid Evaporation of Ice.

Every washerwoman knows by experience that, when wet clothes are hung out in a cold freezing day, they will soon become hard, then they will dry, and become quite limber after being exposed for some time. This is owing to the rapid evaporation of ice. In the arctic regions, the dryness of the atmosphere is remarkable. Wood, horn, and ivory are shrivelled up. The handles of razors, knives, combs, &c., are damaged in the same way as when kept in warm rooms. The human body, in the arctic regions, becomes highly electric from the dryness of the skin. Friction of the skin produces the electric ozone odor. A piece of linen, says Sir John Richardson, after being washed and exposed in the air at 40° below zero, if agitated by the wind, dries nearly as fast as if it were exposed to the sun in England.

Singular Petition to the Senate for an Appropriation.

On Thursday, last week, Senator Underwood presented a petition from some female constituents of his, and which was of a peculiar character. They represented that a gentleman named Tibbett has applied to them, and satisfied them that he is the inventor of a steam engine which may be used with perfect safety. He proposes to generate steam by throwing water on red hot boilers, so as to generate just the quantity of steam which may be required, without involving any danger of explosions. The engine has never been completed. These ladies, however, satisfied of the practicability of the invention, and animated doubtless, by most philanthropic motives, have given him the sum of fifteen hundred dollars, for the purpose of constructing an engine, and ask Congress to give as much more. Now had these ladies been readers of the Scientific American, or their husbands (if they have any) subscribers, they would have saved their fifteen hundred dollars. Their money is done for, that's a fact. This plan of Tibbett is at least 28 years old, and besides it is useless, and opposed to true science. This has been set forth in our columns a number of times. The memorial was referred to the Committee on Commerce.

The Collin's Steamers.

The amendment to grant $33,000 a trip to these noble steamers passed the Senate by a vote of 27 to 19 on Friday last week.

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Scientific American

NEW-YORK, JUNE 5, 1852.

Western Enterprize---Railroads.

During a recent hasty journey through the northern portion of the Great West, we saw much to instruct and gratify the mind upon all matters pertaining to the general progress of the nation; and while the East—the seaboard—maintains the supremacy in many important particulars, yet, with the rapidly opening facilities for transit, the Western World must soon outstrip us in all the elements of substantial greatness.

There is no country which so much demands the influence of the railway, as that which lies beyond the eastern shore of Lake Erie and its southerly line, dividing the States of Pennsylvania with Ohio, Virginia, and Kentucky. This fact is now well understood, and the eastern capitalist is turning his attention to this important subject. Although comparatively an uncultivated wild, especially beyond the western line of Ohio, inviting only to those fond of the rugged but substantial realities of life, yet withal there is an increasing pressure westward, and an internal channel through Indiana and Illinois, to the Mississippi, would command an immense business both in passengers and freight. The inhabitants of the West are alive to this truth, and an animated struggle is going on in the more important western towns in this respect. The Michigan Central Line of railroad, which passes through the State to the Lake, constitutes an important link, connecting us with Chicago and the northern country in a most easy and rapid manner. The stock in this market commands its par value. This, however, did not fully answer the public demands, and to complete a more easy access to Chicago, a road has just opened from Toledo, Ohio, to Chicago, a distance of 246 miles, passing through a country abounding in unsurpassed agricultural richness. The stock of this road commands, in this market, from $15 to $18 per share above par, and we think justly so, for the road must, of necessity, constitute the terminating link in the great chain stretching from New York and Philadelphia northwest. The cost of building and keeping in repair all western roads, must be a great deal less than eastern roads, as the grading is comparatively easy and timber plenty, convenient, and almost costless, while, at the present price of real estate, the right of way can be negotiated upon very favorable terms.

People are getting tired of canal and steamboat travelling, they are too slow for the progressive spirit of the age, and must soon be forgotten in the great rush. We had, in our journey, an opportunity of testing the three systems: leaving New York by the Hudson River road for Albany, via the Great Central Line for Buffalo, we were compelled to cross the angry Lake, and, not feeling satisfied with what we had experienced, we journeyed down from Toledo to Fort Wayne, Ind., a distance of 104 miles, on the Wabash and Erie Canal. This latter place is a very important growing town, and the people, for a while, remained satisfied to reach the lake in from twenty-four to forty-eight hours, but a new spirit is infused into them, and they are actively engaged in building a railway, east, to Crestline, 131 miles into Ohio, connecting with other roads from the East, and a survey is, we understand, going forward for a road to Toledo, somewhere in the vicinity of the canal. At first it would seem that it would not pay,—locally it would not at present,—but the travel is immense, and considering how cheap a road can be constructed, we think it must soon become remunerative, for it cannot stop here, but must find its way to Lafayette and end at St. Louis.

We speak of these localities from personal observation, but the remarks are applicable to the West generally, where villages are springing up under the influence of the surplus emigration, which must overflow from the Atlantic cities, and it is indeed surprising how able and robust men can hang about this city, drinking the very dregs of poverty, when such a rich field for independent labor is open at the West.

Fire-Proof Houses.

Almost every day we hear of the destruction by fire of some factory, store, or important public building, in some part of our country. In the newspaper accounts, it is generally stated, "so much was covered by insurance," in such and such an Insurance Company. No property can be covered by insurance in the real sense of the term; that which is lost by fire may be covered to the owners by insurance, but it is lost to the country and the world forever. Here is a large building which cost the labor of a hundred men working for a hundred days to erect; if that building be burned down, although insured, can it restore the labor which was expended upon it? No; that which is lost by fire—that is, good property—is a loss to the whole country, for houses and buildings are but stored up labor, and when they are consumed by fire, the whole labor must be performed over again. In very many cases no money, toil, nor skill can restore that which is consumed. When a valuable library is burned up by fire, like the one recently destroyed in Washington, it is impossible to estimate the loss, for much that is sacred, and of the greatest importance to posterity, perishes beyond the possibility of restoration. If the Library of the New York Historical Society were to be burned down now, all the wealth in our country could not restore it to the same condition again. Since the destruction by fire of every valuable building, or property, is a loss to our country and the world, it well becomes every city, every company, and every property owner, to look well to the prevention and protection of houses from being consumed by fire. Insurance is a tax,—it is nothing more nor less, and is not a light one by any means. The best insurance on property is a fire-proof structure, and the attention of all corporations and associations, should be directed to encourage the construction of more thorough fire-proof buildings in our cities. We know that more attention is now devoted to the erection of such buildings than there were some years ago; we rejoice at this, still there is not enough of general attention paid to the subject yet, or we should not be receiving intelligence, almost every morning, of a destructive conflagration in some city or village of our land. It is not the outside walls of brick or stone, with iron shutters, which make a building fire-proof; many such buildings are anything but fire-proof inside. Every part of a building should be constructed upon fire-proof principles: the joists, &c., should be made of iron, and every part should be effectually guarded against fire, and nothing left to conjecture upon that penny-wise and pound-foolish principle, of paying an insurance tax for conflagrations.

The Wheeling Bridge Case.

On Thursday, last week (27th ult.), the U. S. Supreme Court, at Washington, rendered its final decision on the Wheeling Bridge Case, and the report of Wm. J. McAlpine, Chief Engineer of New York State, to whom was referred the important question of examining the Bridge and giving his opinion in reference to the mode of removing what the Court had decided to be a *nuisance*, viz., the bridge, as constructed, which obstructed the passing of steamboats. Judge McLean, of Ohio, announced the decision of the Court to be, first—that no change will be allowed in the decree of the court, unless it will provide a safe and convenient passage, at all times, for the boats having chimneys eighty feet from the water. Second—the court will not sanction either of the plans proposed, but if the defendants can make a draw not less than two hundred feet wide in the Western bridge, and make the channel equally safe and convenient as the Eastern channel was before the erection of the suspension bridge, and remove all other obstructions from it, they may try the experiment at their own risk and responsibility.

The decree heretofore rendered shall be recorded, and unless the obstruction to navigation be removed or adequately remedied on or before the first of February next, the bridge shall be abated.

The defendants are ordered to pay costs, amounting to about $15,000.

Chief Justice Tanney and Justices Daniel and Wayne dissented; the dissent of the former is based on the ground of want of authority in the Court to make any decision in the matter; the reasons of dissent of the other two Justices we do not know yet. There is no remedy, therefore, for the people of Wheeling but to comply with the decision, or get a relief bill passed by Congress, or take down the bridge. It is our opinion that no relief can be obtained from Congress, and that the bridge must, to the great regret of the people of Wheeling, come down. We have had the report of Chief Engineer McAlpine for some time, but chose not to say anything about it till now. It is an able one, and every person who knows that gentleman, will give him credit for candor and impartiality. He presents eight different plans for modifying the present suspension bridge, which, he says, is totally unfit for railroad purposes. All of these plans involve great expense, the best costing no less than $156,243 50. Owing to the peculiar nature of the navigation, and the principles upon which the steamboats running on the Ohio River are built, the bridge as at present constructed, offers great obstructions; there can be no doubt of this. The lowering of part of the chimneys is troublesome and expensive; still, we cannot but believe that these boats might be built to run equally well with lower chimneys. If this were done, there would be no necessity for altering or removing the present bridge. The time will come when these boats must have engines differently constructed,—have larger boilers, and not be under the necessity of wasting so much coal, and carrying so high steam. In that case, the chimneys will be made lower, like the boats at the North, which are as swift, and certainly far safer.

Great Improvement in the Manufacture of Salt.

It is well known that the salt brine obtained from the borings at Salina and Syracuse, N. Y., contains other matters—impurities—than the pure chloride of sodium—table salt: iron, plaster of Paris, and carbonate of lime are the impurities. The methods heretofore practiced for obtaining the salt, were evaporating by solar influence, to produce the purest kind in large clear crystals; and boiling down in kettles, to obtain an impure but rapidly formed salt. By neither of these processes was the salt obtained pure, and the boiling plan was an expensive one. A new process has been introduced into the salt manufacture by the discoverer, Samuel B. Howd, of Syracuse, N. Y., the inventor of the well-known "Howd Wheel." His plan is entirely different from all others. It consists in forcing the brine directly from the State Reservoirs into heaters, and from thence to an upper steam chamber, from which it descends to a receiver, then up into a main evaporating boiler, and from it into open or crystallizing vessels, where the salt is deposited. While the brine is going through these separate processes, the iron and plaster are thrown down in the heaters, and the brine is concentrated in the upper steam chamber, where the weak brine is mixed with the strong, and when it passes into the receiver it settles, after which the brine that is left, is pure, containing the chloride of soda only, and is passed into the evaporating boiler, where the surplus water is removed by evaporation until the brine is very strong—about one half beyond saturation, in which state it is blown out into the crystallizing vessels, and the complete evaporation is then accomplished by the heat of waste steam. The impurities are thus removed, by the principles involved, of their greater gravity, when thus mechanically suspended in the liquid. The new process is a scientific one,—the salt produced is like driven snow, and the crystals are exceedingly beautiful. The discovery is of great importance to the State of New York, and we are told the process economizes much fuel in comparison with the boiling process, for producing the common impure salt.

The Great American Lock in England.

In No. 36 of our paper we published an extract from a Quebec paper, stating that the Newell or Hobbs Lock had been picked by a celebrated English mechanic, in London, but we doubted it at the time, and have since learned that this story has no foundation in truth; the Yankee lock still, as we hope it ever will, remains impenetrable to the skill of the whole world, Mr. Hobbs having had, for the last six months, no less than seven of these locks in the hands of different experimenters in England, for the purpose of picking, but, up to the present time, it has proved invulnerable to all their attempts.

"Who Reads an American Book."

"Thirty years ago it was asked, 'who reads an American book?' It may now be asked, 'What intelligent man in all Europe does not read an American book?' (Applause.) Sam Rogers reads them; Henry Hallam reads them; Macauley reads them; McCulloch reads them; Lord Mahon reads them, and *sometimes* finds himself answered when he comments on them. (Laughter.) And there is not an intelligent man in England who does not read American authors, and especially our legal and historical works. And in France, Thiers and Guizot read them, and throughout the vast population of France, there is no doubt that there is a greater devotion paid to the study of our popular institutions, to the principles which have raised us to the point at which we now stand, than there is paid to the monarchical institutions and principles of government of every part of Europe."

[The above extract is from the late speech of Daniel Webster, delivered in Fanuiel Hall, Boston. We were sorry to see the remark about 'Who reads an American book?' for it has become hackneyed, and it grates a little upon our ears to hear anything common-place coming from Webster. We do not know what foreigner made the remark—it was no doubt some flaunting reviewer; but the original expression and the remarks of Mr. Webster are not correct: sixty years ago the works of Jonathan Edwards were fireside books in tens of thousands of families in England, Scotland, and part of Ireland. "Dwight's Theology" has also been a household book among the same people, ever since it came from the pen of its gifted author. The people who have read these books—who have made them their study—understand better than any other people, and better than "Thiers," the principles which have raised us to the point on which we now stand.

Anthracite Coal for Naval Steamers.

The Engineer in-Chief of the Navy (Mr. Stuart), has made a report to the Navy Department, in which he recommends the use of anthracite coal for naval steamers fitted with iron boilers, being more economical, and entirely free from smoke and accident by spontaneous combustion. His conclusions are founded upon actual experiments in our war steamers; and he intends, with the permission of the Department, to continue these experiments, to see whether anthracite may not be used advantageously under copper boilers, bituminous coal being generally considered less injurious to such boilers, and therefore used in service in preference. He further recommends to the Bureau of Yards and Docks the use of anthracite in the several Navy Yards, and especially for the engines of the Dry-dock at the Brooklyn Navy-yard. This opinion is entirely different from the one we entertain respecting the two kinds of coal.

Woodworth's Machine in Philadelphia.

The Pennsylvania Enquirer of last Saturday, the 29th, publishes the opinion of Judge Kane in respect to four motions for injunctions to restrain the parties from using machines claimed to be infringements of Woodworth's patent. Injunctions were granted in all the cases, and it is stated that Wilson owns Barnum's patent something very singular, is it not? Judge Kane decided it to be a complete infringement of the Woodworth patent; we said it was not; and so thought Mr. Wilson, for he has purchased it. We may say a few more words on this subject next week.

Railroad Safety.

A bill has been reported in the Massachusetts House of Representatives to promote the security of railroad travel. It provides that the flooring of bridges shall be three inches thick, and that every switch shall be provided with an index, which shall so render its changes of position as to be distinctly visible to the engineer at the distance of not less than half a mile.

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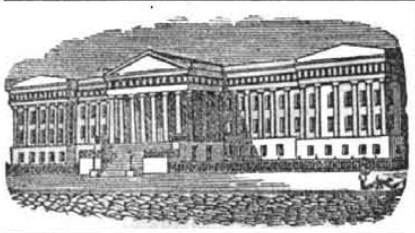

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 25, 1852

MACHINES FOR MAKING FUSES—By A. G. Andrews, of Avon, Conn: I claim passing the hollow mandrel through the winding spools, in combination with the flyers, which direct the winding thread from the different spools to the interior of said mandrel, for the purpose of winding the fuse as it passes from the forming machine, when combined, substantially as directed.

LOCOMOTIVE BOILERS—By James W. Farrell, of Reading, Pa.: I claim isolating the lower portion of the water space surrounding the furnace from the upper portion and connecting it by a free and constantly open communication with the tank of feed water, in such manner that the feed water of the tank will circulate, without being forced by a pump, in contact with the fire plates, to cool them and to be itself heated, preparatory to being pumped into the boiler, substantially as set forth.

TUMBLERS OF LOCKS—By Henry Blakely, of New York City: I claim, first, the employment of tumblers in such combination with the bolt of the lock, that each and every tumbler, independent of the others, shall have freedom to move laterally as well as vertically, whereby a great number of positions may be assumed by their unattached ends, as described.

Second, I claim the guide pieces upon the key, for the purpose of controlling the lateral motion of the tumblers as described, the whole being constructed and operating substantially in the manner described.

WATCH-CHAIN SWIVELS—By Wm. B. Carpenter, (assignor to W. D Salisbury & S. Y. D. Arrowsmith), of New York City: I claim making the joint of the opening piece oblique to the eye, so that it will open obliquely to the hook piece, in the manner and for the purpose set forth.

MORTISING MACHINES—By Jno. B. Chambers, of Pittsburgh, Pennsylvania: The main principle of action, involving reciprocating chisels, and by a ratchet wheel feeding on the timber, is not by any means new; nor do I claim such, these being well known and common to other mortising machines; nor yet do I claim reversing the chisels, neither do I claim separately of themselves the devices by which I effect my improvements.

What I claim is, first, the employment of a stop catch or hook, operated on by the reach arm or pawl, to prevent the momentum given to the ratchet wheel from throwing the pawl out from between the teeth, after having performed its pull, and so making irregular the feed, one of the ratchet wheel teeth being bevelled or reduced, in order to admit of the pawl entering sufficiently deep to arrest the motion of the feed, in the manner and for the purpose set forth.

Second, the combination and arrangement of the stud, clutch arm, lever, cam, and stop, so that when the lever is thrown in the cam it will unclutch the machine, when the chisel crank is on the full centre, and the chisels are out of the work, and retain them in that position by the clutch coming in contact with the stop, the several parts being made, arranged and operated as set forth.

STONE DRESSING MACHINES—By Simon W. & R. M. Draper, of Boxborough, Mass.: We claim hanging the arm, carrying the pick upon a shaft, which receives a vibratory motion through a cam driven by a mill spindle or other spindle provided for the purpose, and giving the said arm a motion lengthwise along the said shaft, substantially for the purpose described.

[See engraving in No. 4, this Vol. Sci. AM.]

SWIVEL HOOKS—By Albert and Morris Falkenau & Morris Pollak, of New York City: We do not claim to have invented any one of the parts described and shown: but we claim the combination of the spring and its enclosing slide, with a swivel hook, for the purposes as described.

WORM TUBS OF STILLS—Geo. Johnston, of Farmington, Iowa: I claim the division of the worm tub into an upper and a lower compartment, and connecting them to each other by a valve, so arranged that it will be operated by the influence of the temperature of the water in the upper compartment, for the purpose of enabling the distiller to keep the water in the said upper compartment at any elevated temperature that may be required for use, in preparing the distillers beer or fermented wash, or for other purposes in the distillery

FLOUR BOLTS—By David Marsh, of Fairfield, Ct.: I do not claim to be the first to use a flat sieve or bolter, to separate substances of different sizes. I claim the construction, arrangement, and combination of the shafts and cranks, to receive and move the bolter with the cranks and connecting bar, or their equivalents, as described, to regulate and equalize the movement, the coarser particles being carried off from the bolter by the flexible tube or other convenient means, the whole being substantially as described.

I also claim the application of the breakers or spreaders in the bolting box, to prevent the material working off too fast, and spread it evenly over the sieve or bolter, as described.

LUBRICATING OILS—By Wm. H Mason, of Boston, Mass.: I am aware that spirits of turpentine and carbonate of potash have been used before my invention in lubricating compounds; I do not, therefore, claim them, except as specific agents to accomplish a definite and specific purpose stated.

I claim the combination of a mixture of camphene and benzole, carbonate of potash and glycerine, with whale or other cheap oil having similar properties, in the manner and for the purpose set forth.

HOMINY MACHINES—By Samuel Null, of Carroll Co., Md.: I claim the combination of the beaters, C C, with the beaters, D D, each moving in opposite directions, as set forth.

RAILROAD CAR TRUCKS AND BRAKES—By E. G. Otis, of Bergen, N. J.: I do not claim the winding of the chain around the axle, for the purpose of pressing the shoes against the wheels; neither do I claim the clutch, nor the collar separately, for they have each been previously used.

But I claim, first, the method of operating the toggle joint by means of the rod having the cam upon it, which works in a slot in the bar, by which the clutch is thrown in and out of gear, or the cap made to bear against the hub of the wheel in combination with the compensating joints, constructed in the manner and for the purpose described.

Second, I claim the employment of the guards, vertical studs, and rods, arranged as described, for the purpose of enclosing the wheels and preventing them getting off the track, in case of the breakage of a wheel or axle, in combination with the arms and bolts, by which the trucks are suspended to the car bed, in the manner and for the purpose specified.

COOKING APPARATUS—By Jos. Smolinski, of New York City: I claim, first, the peculiar arrangement of the smoke flues, as shown, by which they are made to envelope the centre on all sides, and thus concentrate them in the smallest possible space.

Second, the combination with this machine of the key and valves, for ventilation and supply of air to the furnace from the room, as described.

CAST-IRON CAR WHEELS—By Stephen Thurston, of Scranton, Pa.: I claim connecting the hub and rim of a solid cast-iron railroad wheel, by a single plate, having two series of radial corrugations united by a hollow band or single circular corrugation, substantially as described.

MACHINES FOR JOINTING STAVES—By Dennison Woodcock, of Independence Centre, N. Y.: I claim jointing the staves by means of cutters, set at an inclined position, and converging towards one another in the front, the said cutters having a motion given them perpendicular to the stave, for formation of the bilge, or varying width of the stave, by means of the cam, framing, and their accompanying parts, or devices equivalent thereto, operating substantially as specified.

DESIGNS.

LADIES' HAIR COMBS—By Wm. Redheffer, of the District of Spring Garden, Pa.

TOWEL STAND—By Nathaniel Waterman, of Boston, Mass.

Interesting Patent Case.

A short time ago a motion was made in the U. S. Circuit Court of this district, by Joseph Ritter, and William C. Kneeland to restrain Alfred T. Serrell, John H. Okerhausen and James A Ferguson, from using a machine for making mouldings.

The plaintiffs, who are the assignees of James G. Wilson, of a right to use the patent heretofore re-issued to William W. Woodworth, as administrator of William Woodworth, for the well-known planing-machine, for making mouldings within the city and county of New York, for the balance of the unexpired term for which the said patent was re-issued, filed their bill of complaint against the defendants, who are engaged in making wood mouldings, in West Thirty-seventh street, and are using four machines built in accordance with a patent granted on the 16th of May, 1848, to the defendant, Alfred T. Serrell. The plaintiffs prayed for an injunction to restrain the defendants, and for an account of the work which had been performed by them since the assignment. The motion for the injunction was heard on the 6th and 21st of May, 1852. The defendants insisted—

1. That they were not using the Woodworth patent, nor were the machines in use either substantially or in any way erected according to the specification of said patent, but that on the contrary, they were using four machines which were constructed in accordance with the patent granted to the defendant, Alfred T. Serrell.

2. That the re-issued patent to William W. Woodworth, did not embrace any claim except for planing, and tongueing, and grooving plank or boards. That the machines used by the defendants could not be applied to such purposes.

3. That the patent granted to defendant Serrell was for making wood mouldings from stuff prepared in a particular way, and not contemplated nor described by Woodworth. That by Serrell's plans thirty per cent. was saved in stuff alone, and that the Woodworth machine was incapable of working stuff in the way patented by Serrell. The injunction was denied, and the bill of complaint dismissed, with costs. For plaintiff, W. Mootry and Charles M. Keller, Esq; for defendant, Geo. G. Sickles.

[The above appeared in the "New York Daily Times" of Wednesday last week, and the following in the same paper on Thursday. It will be seen that there are some hard statements made by some of the parties:—

"DEAR SIR: in your paper of to-day (the 26th inst.) the report of the above case, relating to the Woodworth Planing Machines is almost wholly incorrect. No such points as therein inserted were advanced or insisted upon by the defendants, or adopted by the court. The only question argued and submitted to the court was a preliminary question as to whether the plaintiffs, being the assignees of James G. Wilson, (the owner of the Woodworth patent), had any right to sue under their assignment from him, he having in previous assignments to Wm. Van Hook and others, disposed of his entire interest in the city of New York. No opinion on any other point was delivered by His Honor Judge Betts. The merits of the case were not entered into, and the points for defendants, as published, are a pure fabrication. Judge Betts has read the report and pronounced it wholly incorrect. Nor was the bill of the plaintiffs dismissed with costs. In their behalf, I withdrew the suit a day before any opinion was given, in order that their title might be amended and corrected. As soon as this is done a new action will be commenced against the same defendants for the same matter and thing, and the case fully and properly disposed of on the merits. Very respectfully, yours,

WM. MOOTRY, Solicitor for Plaintiffs.

No. 61 Wall street, May 26, 1852."

The great complaint which we have to make against the owners of the Woodworth patent is the inordinate desire to stop all parties from doing business in the same line of work performed by the Woodworth machine. There is something morally blinding in the self-interest of all men; against this we must wage honest and stern warfare. It is very wrong for one patentee to try and stop another from using a machine in the same line of business, when those machines are totally different inventions. This the Woodworth assignees have done very often; it is not doing as they would be done by. Thus they have claimed *pressure* as the invention of Woodworth, when applied to boards or planks in the act of being planed; how they could do this with the light of the past before their eyes, is something which does not appear very beautiful in the eyes of disinterested parties.

Every inventor has the right to his own invention, and no one inventor has more special rights than another. It makes no matter whether one is nine or ten years older than the other, or not. We have blamed the owners of Morse's patent for endeavoring to break down another telegraph company, seeking for and obtaining an injunction against a patented machine which is different in principle and action from Morse's.

Rotation of our Forest Trees.

We desire here to allude to a subject which has an important indirect bearing, at least on the subject of agriculture, because it illustrates the great rotation principle, in the vegetable kingdom.

The forests in many parts of our county, are about changing their tenants. In our vicinity, the great burden of our forest timber, as found here by the first settlers, was white-oak. This is about giving place to the black-oak, especially on elevated ridges, or where the land is inclined to be sandy. The venerable white-oaks, with diameters from 30 to 50 inches, are, in most instances, surrounded by a crop of sapling black-oaks, leaving beneath their shade nothing to perpetuate their kind.

If we are not mistaken in our judgment, the cause of this is not very hard to define. It is a matter well understood, by those who have given any attention to the subject, that there is, in every portion of the earth, certain elements or principles, which go into the composition of vegetable matter. That any particular species of vegetable will sooner or later consume out of the earth that which is peculiar to its nature, after which that particular kind will not prosper until the principle which nourishes it is reproduced, either by resting the land, or by special manuring.

Some vegetables exhaust from the soil their peculiar food more rapidily than others. Flax, for instance. It used to be said by old farmers, that a piece of ground that had borne a crop of flax would not bear another for seven years.

It is on this principle that the rotation in crops is predicated, a doctrine, for the knowledge of which we are indebted to our experimental farmers, and to book reading. This principle, of the rotation in crops, is probably as well understood, at this time, as anything connected with the science of agriculture. And this is the principle, no doubt, which explains why it is that the white-oak is leaving our forests and giving place to the black oak timber. It has been so long the undisputed tenant of our woods, that, having exhausted from the soil that aliment upon which it lives, it retires, in the order of Providence, to give place to a successor whose special food yet remains in rich abundance in the earth.

Every farmer who has attentively observed the progress of vegetation in his own lane and yard, must have noticed the operation of this principle. The order of our grounds is something like this—the first occupant was the smart weed—the next a species of white blossomed weed—then the dog fennel, and now the yarrow is coming. As soon as the aliment was extracted that nourished each particular kind, it died for the want of something to live on, and was succeeded by another species, and perhaps mere accident determined the successor.

Since our attention has been directed to this transition in the forest, we have made the subject a matter of inquiry, when favored with the company of men who would be likely to notice things of this kind.

Having been referred, with reference to this matter, to Joshua Coperthwaite, of Medford, New Jersey, where they have timber lands which have frequently been cut off for the supply of wood to the Philadelphia market, we wrote to that gentleman upon the subject, and have received his answer, from which we take the following extract:—"If the pine is cut off the oak will grow, and if the oak is cut off the pine will grow."

At the late State Fair, at Cincinnati, we met with an intelligent fruit grower from Illinois, to whom we mentioned this forest subject, and found that he had noticed this change going on among the trees of the wood. At our request he penciled down and handed us the following statement. He was formerly a resident of Ohio, and his remarks refer to this State:—

"I have long been convinced that two generations of the same kind of forest trees, seldom or never succeed each other on the same tract of land. A crop of trees, nearly all of one kind, which last from two to four and sometimes to five centuries, seem to exhaust the soil of that peculiar nutriment, which is adapted to that sort, and at the same time prepares it for some other.

"Instances: there is the track of an old tornado, which passed through Delaware county, the north-east corner of Licking, and finally into the south-east part of Knox, which, upon counting the annuals on a number of stumps, I ascertained to have occurred about the year 1740. In the track of this tornado, the timber is essentially different from the older timber on each side of it. Again; most of the west part of Knox county, was, thirty years ago, when I first became acquainted with it, covered with a growth of beach, slightly mixed with other timber. That this growth had succeeded an oak forest was quite plain, from the fact, that oak trees of enormous size, in a state of decay, were to be found in every direction.

[The foregoing extract is taken from the Agricultural Report of the State of Ohio, a large volume, for which we are indebted to our respected correspondent, C. Springer, of O., who directed our attention to this subject, which is contained in a letter to E. Harkness, of Muskingum Co.

We have noticed, and we have heard many farmers remark, that white oak and maple came up after pines were cut down. We have seen this in the pine forests in the counties of Albany and Oneida in this State, but we have never examined the subject so attentively as to perceive the existence of a certain law in these changes. The subject, we believe, demands further investigation, for it is one of great interest to every class of our citizens.

The Curculio.

A correspondent of the Boston Journal says, take cotton batting, put three circles six to twelve inches apart around your plum trees, and these will catch the curculio. He caught sixty in the first circle in twenty-four hours; in the second circle but few had been caught, in the third circle scarcely one got so high. He found this a sure preventive, and got lots of fine plums last year, for the first time for many years. He further recommends keeping the ground free from windfalls, as they contain the maggot, which goes into the ground to mature itself.

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TO CORRESPONDENTS.

J. W. H., of Pa.—It will be only necessary for you to construct a model representing the wheel attached to the axle

M. P., of N. C.—The patent you refer to was issued Jan. 15, 1851, and the claim will be found on page 150, Vol. 6, Scientific American. We are not aware of any suits having been brought to test the validity of the patent, we know nothing against its character.

S. B. H., of N. Y.—We have for a number of years prosecuted an extensive patent agency business, and secured many valuable inventions, both at home and abroad. We can undertake your business upon such terms as will afford you ample satisfaction. Inventors should in all cases entrust their business to competent solicitors, as many times they have failed on defective papers. We can do your business by correspondence without the necessity of your coming here.

J. P., of N. Y.—An English patentee proposed to propel carriages or vessels by the action of water kept under pressure in air vessels, the air being condensed by stationary power. A main pipe is to be laid between the rails with branches at suitable distances from which the water is allowed to flow against the carriage while it is passing, and thereby propel it. The probability is, that the inventor will never live long enough to realize the practical results of this scheme.

R. A. S., of Ohio.—If you are using the ordinary fireplace you will gain considerable by simply lining the back and sides with fire-brick. The expense of alteration is a mere trifle, and you will save considerable heat by it, we should think.

H. A. R., of Mass.—By reference to Vol. 6, Scientific American, commencing with No. 1, you will find an able series of articles upon the Voltaic battery by an able electrotypist, we can furnish the volume in sheets or bound. You should have it.

A. W., of Vt.—We shall be glad to procure for you a second-hand engine and boiler, of the capacity mentioned. We are in a position to obtain a good article, and at a very low price. During the past five years we have been in the habit of attending to such orders, for the accommodation of our subscribers.

A. J. C., of Philadelphia—A block for docking and building vessels substantially like yours will be found illustrated in Vol. 15, 1835, Franklin Journal. The patent was granted to John Williston, Portsmouth, Va. The rider block surmounts the ground block and is divided into equal parts by a vertical cuniform section. We cannot advise you to apply for a patent.

C. C, of N. Y.—The difficulty in the case arose from a delay on the part of the inventor in not getting his patent out in season—one disadvantage of a delay. The original papers were injudiciously prepared, and we amended them at his request. It is paramountly important that the invento's application should always be well drawn up; loose and ambiguous papers often destroy a patent.

J. W. G., of N. Y.—Yours will appear next week.

C R. M. W.—Yours will also appear. We could not insert them this week.

A. R. P., of Mass.—Yours has been received

E. N., of N. Y.—Leving's sash machine, we believe, is well spoken of, and in our opinion no infringement on the Woodworth patent.

K. S. S., of Charleston.—We shall send you the Sci. Am one year. The price lists we have been unable to obtain but would advise you to address T. J. Wood, corner of Chatham and Duane sts., he is a dealer in tools.

E. R., of S. C.—We should like to examine a sketch and description of your apparatus. If you can realize all you anticipate, it will be a good invention.

H. M., of N. Y.—We can undertake your foreign business at any time. As soon as you determine how far you will go please notify us, and the business will be pushed forward as rapidly as possible.

T. A. R., of Mo.—Certainly not. The principle is old and well known. 10 years since we saw a machine constructed upon the same principle in the the city of Troy. The person is evidently an impostor, and should be overhauled.

J E. G. of Pa.—The gauge of the Erie Railroad is 6 feet, which is about 1 1-2 feet wider than any other road in the country. It is the longest road in the world

T. D., of Miss.—Several years since an article appeared in the "Annales des Mines," Vol. 6, touching the quantity of fuel consumed in the cupolas of Birmingham, Manchester. and Newcastle, the proportions were very much greater than since the adoption of the hot air plan. Messrs. Chance and Bro, near Birmingham, manufactured all the glass for the Crystal Palace. They are unquestionably the largest makers in the world, employing 1,200 hands, and consuming hundreds of tons of coal.

R. S., of Ill.—The patent of Rogers in hanging the bed stone (when the shaft or spindle to which the runner is attached, passes through the same) by means of a universal joint in combination with a lever and screw. We have never seen this invention in operation, hence we cannot speak of it more particularly.

E. C. C., of S. C.—We have never seen any such arrangement as you describe. Cams have been employed in various ways, and could only be claimed operating in combination with some other devices, we think yours is new and patentable.

A. K., of N. Y.—If you wish your invention broughtinto notice get an engraving published in our columns.

J. W. J., of Mass.—House's Telegraph employs the Roman letters of our alphabet. A telegraph to use these characters was also invented in 1841 by Bain.

J. B. J., of Mass.—We have no particular data for the comparative value of certain woods and coal as fuel, but have some general information. It is the general opinion that one ton of anthracite coal is equal to three cords of beech, and two and a half of birch or maple. 168 lbs. of coal is equal to half a ton of Southern pine wood.

M. K., of Mass.—We have known of two cannons being fixed on a swivel centre, to be fired one after the other. Your idea appears rational. A very simple tool has been used in this city for widening the bottom of a drilled hole. The telegraphic wire will not act if it be made red-hot for some length. Are you sure that the steam would not generate electricity if the boiler had the arrangement you speak of? we think it would.

H. R., of C. W.—Your article on Ventilation will appear next week.

J. W. H., of N. Y.—The first 26 numbers of Vol. 4 we cannot supply complete

J. M. W., of C. W.—The back numbers to April 25 have been sent by mail, and if we are not mistaken your friend took the previous numbers with him.

C. H. T., of L. I.—We believe Dewey's Rake to be a very good one, but you can find out more about the different kinds by calling at John Mayer & Co.'s Agricultural Warehouse, 197 Front st.

J. G. M, of Mass.—If you will deliver the volumes to us free of charge we will sell them for you.

Money received on account of Patent Office business or the week ending May 29:

G. W. M., of Tenn., $55; J. D., of Pa., $15; J. A. J., of N. Y., $25; H. P. O., of Ct., $30; D. D., of Pa., $25; G. & S., of N. C., $40; J. J. H., of N. Y., $15; W. S., of Pa.; $12; D. L. of Vt., $30; D. A., of Vt., $30; B. H., of O., $50; J. H G., of O., $20; R. E. L., of Ill, $55; M. W. S., of Mass., $32; C. M. M., of Pa., $30; J. M., Jr., of N. Y., $30; G. B. P., of Pa., $17.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending May 29:

G. N., of N. Y.; J. A. J., of N. Y.; T. H. D., of N. H.; D. D., of Pa.; J. H. G., of O.; R. E. L., of Ill.; G. B. P., of Pa.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

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In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.
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Of Volume 5, all but 4 numbers, price, in sheets, $1.
Of Volume 6, all; price in sheets, $2; bound, $2.75
Of Vol. 7, all back numbers at subscription price.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying.

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We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 12 1-2 cts. per copy.

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American and Foreign Patent Agency

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Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

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SECOND-HAND MACHINERY, TOOLS, &c. One Steam Engine, 4 horse power, Grasshopper pattern, in complete order, $150; 4 horse Cylinder Boiler, with safety and check valves, $75; No. 2, new, Dick's Patent Punching Press, $100, maker's price $175. One Dick's Patent Bank Note or Tobacco Press, platen 24 by 30 inches, very powerful, $125; one india rubber belt, 20 inches by 175 feet long, $75; 10 tons English Blister Steel, at 6 cents per lb, 1 1-2 to 2 in. by 1-2 inch. Second-hand Engines, Boilers, Lathes, blacksmiths' tools, machinery, grease, etc., constantly on hand and for sale by WM. D. ANDREWS, 187 Cherry and 452 Water sts., N. Y. Scrap Iron taken in exchange. 1*

PORTER'S PATENT GRADUATING VALVE FORGE TUYERE—Illustrated in this paper Sept. 6, 1851, gives a sure, quick, and clean heat, and is warranted to save full 25 cts. per day to each fire. Two sizes manufactured. Price $6 to $8. For sale, wholesale and retail, at No. 9 Gold st. W. J. & J. H. BURNETT. 38 4*

NEWELL'S PARAUTOPTIC BANK LOCK—These Locks, which have been tested by the most skillful mechanics of Europe and this country, still remain invulnerable to their combined efforts, proving its superiority over all others. For sale by DAY & NEWELL, 589 Broadway, N. Y. 38 3*

TO CARPENTERS AND DEALERS IN PATENT RIGHTS—The whole right and title to the Patent Blind and Shutter Fastener, which was illustrated in No. 37 Vol. 7 of the Scientific American, will be sold cheap to a cash customer, or the owner of the patent will sell single States (not in smaller quantities) if desired. The invention is a good one; the claims are broad, and it is not an infringement of any existing patent, as decided by parties who have investigated the matter thoroughly. For particulars concerning the purchase of rights, etc., address "DESAIX," box 773, P. O., New York City. 38 3*

STEAM ENGINES AND TOOLS—One Horizontal Steam Engine, of superior workmanship, 12 inch cylinder, 3 feet stroke; heavy bed frame of 4,600 lbs., the whole well finished. One Steam Engine, as above, 10 inch cylinder, 3 feet stroke. A sample of the above engines may be seen at work in Mr. Bogardus's, corner Duane and Centre sts, N. Y.; also at Messrs Platt & Bros, Maiden Lane. Two 6 1-2 Planing Machines, of the most improved English pattern, strong and heavy. Six 2 feet 4 in Planing Machines, will plane 12 inches wide, work with quick motion, well adapted to locomotive tools and engine work. Also a variety of Lathes, Boiler Punches, Presses, and other tools, for sale by the Matteawan Machine Co., Duchess Co., N. Y., 1 mile from the H. R. R. Depot, at Fishkill. A. L. ACKERMAN, Agent. 36 3*

NOTICE TO IRON FOUNDERS—The advertiser wishes the situation of "Charge of a Foundry," having had long experience at it, and several years' experience in charge of a machine shop doing new work and repairs. For reference, address A. T. Pierce, Esq., Norwich, Ct., post-paid. 36 4*

IRON FOUNDERS MATERIALS—viz.: good American Pig Iron—grey, mottled and white; No. 1 Scotch Pig Iron, of favorite brands. Pulverized Sea Coal, Anthracite Charcoal, Soapstone, and Black Lead Facings. English and Scotch patent Fire Bricks—plain, arch, and circular, for cupolas. Fire Sand and Fire Clay. Iron and brass moulding sand; Core sand and flour; always on hand and for sale by G. O ROBERTSON, 135 Water street (corner of Pine), N. Y. 33 6*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
At this Office.

1852 TO 1856.----WOODWORTH'S PAtent Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
27tf P. A. LEONARD.

TO BUILDERS AND WORKERS IN Wood—We are selling a very simple durable, and effective Mortising Machine for $20, boxed ready for shipment. We have sold a large number within the last year, and they have given satisfaction. We furnish three chisels and a lever to operate them. Address MUNN & CO.

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
23tf Painters and Chemists.

CHILDS & TAINTER, Worcester Mass., Builders of Daniel's Planing Machines, either with or without modern improvements. This planer is the greatest labor-saving Planing Machine ever applied to both square timber and boards. Read's feed motion (perfectly practical for all purposes without extra charge) gives the advantage of planing when the carriage is moving both forward and back. The carriage may be run rapid or slow, either way; is drawn from its centre underneath, the pinion working above the rack, secure from shavings, and no belts or gears under the machine. Built heavy and substantial at reasonable notice. 37 3*

DRAUGHT BOARDS, PATENT—Which dispense mostly with the use of Case Instruments, which at best are tedious. The Board combines the use of several valuable instruments. $10, complete. Sent by Express, Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 37 2*

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 23tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

THE EXCELSIOR Sand and Emery Papers are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 284 Pearl street, New York. WM. B. PARSONS,
14 6m*

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

CHARLES F. MANN, FULTON IRON WORKS, Below the Troy and Greenbush Railroad Depot, Troy, N. Y.—The subscriber builds Steam Engines and Boilers of various patterns and sizes, from three horse power upward; also, his Portable Steam Engine and Boiler combined, occupying little space, economical in fuel, safe, and easily managed; Double Action Lift and Force Pumps; Fixtures and Apparatus for Steam or Water; Tools for Machine Shops; Shafting and Pulleys for Factories. Brass Castings and Machinery made to order at short notice. Steam engines furnished cheaper than can be had elsewhere, of the same quality. 30tf

JOHN W. GRIFFITHS—Ship Builder and Marine Architect, 658 Fourth st., N. Y., furnishes models and draughts of all description of vessels, with the computation of stability, capacity, displacement, and necessary amount of impulsion. Propelling power located and proportionably adapted to the form of the vessel. whether sailing or steaming. Mr. G. also superintends the construction of vessels, and may be consulted upon all subjects pertaining to the various departments of the science or practice of ship building. Draughts forwarded by letter to all parts of the world, and to any desired scale; all letters must be post-paid. 27 18*

IMPORTANT TO IRON FOUNDRIES—The Galvanic Alloy Manufacturing Co., Nos. 401, 403, and 405 Cherry st., N. Y., will furnish the Aerostatic Fan Blower at $55, and with patent fitting at $65, that produce sufficient blast for the largest cupola, melting 3 and 4 tons of iron per hour; taking less than one half the power of those now in use, that cost from $80 to $100. The wings, being only about an inch in width (planned upon entirely new and mathematical principles), produce double the blast with half the power of other blowers. Warranted in all cases, or they may be returned and the money refunded. 38 eowtf.

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

NEW HAVEN MANUFACTURING COMpany, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

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SCIENTIFIC MUSEUM.

Fumigation.

In many cases fumigation is essential to promote health, by the destruction of pestilential effluvia. That this can be done is a blessing for which we all should be grateful, and especially since it can be done in a very simple manner. During the hot season it may be necessary to fumigate some buildings, and to do this the whole principle and practice should be well understood. Fumigation is an application of vapors or fumes for the purpose of getting rid of unpleasant or unwholesome smells. By the old method, vapor of hot vinegar, aromatic pastiles, and vegetable matters, the smoke of burning brown paper, burnt feathers, tobacco, &c., were supposed to be effectual; and one or other of these substances is still occasionally employed; but in all these applications little more is done than to substitute one bad smell for another, by overpowering, not displacing or destroying the bad or dangerous odor; and in the case of tobacco, its reputed purifying and anticeptic properties furnish an excellent excuse to those who have the misfortune to smoke, of rendering the house always unpleasant, and not at all more free from infection. The only efficacious kinds of fumigation are by means of gases which decompose the miasmata or fumes, and convert them into innocuous compounds; such gases are sulphurous acid, muriatic acid, nitrous acid, and chlorine; the last named, either in its free state or in combination with lime, or soda, being incomparably the most convenient, efficacious, and powerful.

Sulphurous, and the other gaseous acids, are supposed to perform, indirectly, important service in maintaining a large city in a healthy condition. The products of the combustion of coal may operate in checking the spread of malignant diseases: the manufactories of chloride of lime and other chemical works may also be of use, although the benefit derived from them is seriously counteracted by trades which deal largely in the conversion of refuse animal matters, and were it not for the sewerage, and the plentiful supply of water in New York, the effects of our large consumption of animal food, and the presence of so many slaughter houses, would be more severely felt. In times of plague and other pestilence, the vicinity of smelting furnaces was formerly resorted to as being the least liable to infection, the sulphurous and other acid fumes acting as disinfectants.

The theory of infection and contagion is very imperfect, and therefore the mode of action of disinfectants must be equally so. We are ignorant of the influence and production of malaria, of marsh miasma, and other poisonous exhalations of organic, but chiefly of vegetable, origin, which produce that extraordinary disease, the ague, or intermittent fever. One of the most remarkable properties of some forms of infectious matter is its premanency, retaining as it frequently does, its peculiar powers for a long, if not for an indefinite, period. Of this, the preservation and transmission of dried variolous and vaccine matter is a familiar example. Professor Brand states, that "the infection of scarlet fever is sometimes retained for weeks and months by articles of wearing apparel; in one instance, after a malignant form of that disease had prevailed in a house, it was fumigated with chlorine and white washed, and every article of furniture and clothing cleansed and fumigated, with the exception of a handkerchief, which had been accidentally overlooked, and to which the appearance of the disease after a period of two months, was probably attributable. Blankets and woolen goods seem especially retentive of such poisons, and in all doubtful cases should be burned."

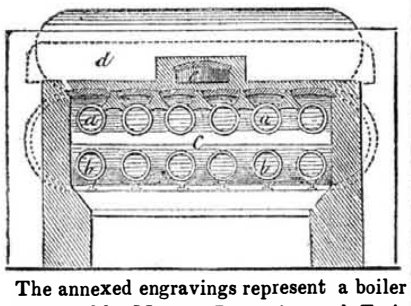
But since Brande wrote this paragraph, the invention of driving a current of hot air at 300° through infected clothes has superseded the destructive practice of burning good clothes in many hospitals. If currents of hot air at 300° could be driven through the rooms of every house before people went to live in them, and afterwards at least once per annum, the danger of infectious disease would be much lessened, and general health greatly promoted. It is to be hoped that this good invention will yet be more extensively applied.

In 1825 Dr. Faraday was employed to fumigate the Penitentiary at Millbank, London The space requiring fumigation amounted to nearly 2,000,000 cubic feet, and the surface of the walls, floors, ceilings, &c., was about 1,200,000 square feet. This surface was principally stone and brick, most of which had been lime-washed. The fumigation was performed by means of chlorine generated in the following manner:—A quantity of salt in powder was mixed with an equal weight of black oxide of manganese, and upon this mixture was poured a cold solution of 2 parts of sulphuric acid and 1 part water. The acid and water were mixed in a wooden tub, the water being first put in, and it being more convenient to measure than to weigh the water and acid, 10 measures of water and 9 of acid were used; half the acid was added first, the remainder being added when the mixture was cold. 3 1-8 lbs. of the mixture of salt and manganese were put into a common red earthen pan, of the capacity of about a gallon, to which a measure equal to 4½ lbs. of the dilute acid was added; the mixture was then well stirred and left to itself. A number of these pans, each containing a similar dose, being thus arranged, all the apertures were closed, and as the action did not commence immediately, the operator could pass from pan to pan without inconvenience from the suffocating fumes of chlorine. On entering a gallery 150 feet in length, a few minutes after the mixture had been made, the general diffusion of chlorine was evident; in half an hour it was often almost impossible to enter, and frequently on looking along the gallery, the yellowish green tint of the gaseous atmosphere could be perceived. Up to the fifth day the color of the chlorine could generally be observed in the building; after the sixth day the pans were removed, though sometimes with difficulty, and the gallery thus fumigated had its windows and doors thrown open. The charge contained in each pan was estimated to yield about 5½ cubic feet of chlorine; in fumigating the space of 2,000,000 cubic feet, about 700 lbs. of common salt and the same of black oxide of manganese were employed, yielding about 1,710 cubic feet employed to disinfect this space. In ordinary cases Dr. Faraday conceives that from ½ to ¼ this quantity of chlorine would suffice.

A most excellent disinfectant for sinks, &c., is the chloride of zinc. This is prepared by dissolving zinc in muriatic acid. This should be diluted with five times its weight of water, and then thrown down the sink, drain, or whatever it may be. By taking the chloride of lime, (bleaching powder), which can be purchased at all druggists, placing some of it in a bowl of stone ware, and pouring some sulphuric acid on it, the chlorine gas will raise in copious fumes; this is the most simple plan to follow, by those who are not much acquainted with chemical operations.

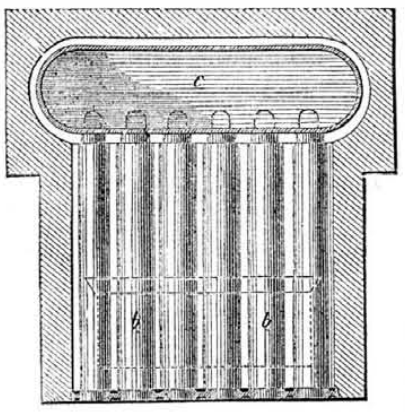
On Boilers.---No. 26.

Fig. 53



The annexed engravings represent a boiler constructed by Messrs. Legavrian and Farinaux, of Lisle, and for which they obtained half of a prize of 10,000 francs, offered by the Society of Encouragement, for improvements in boilers. Fig. 1 is an elevation in section, and fig. 2 a plan of this boiler. It consists of two rows of generators, *a a* and *b b*, lying immediately over the fire-bars, and communicating at their back ends with the receiver, *c*. The front ends of the generators are supported by a cast-iron frame, as shown. The brick-work over the upper row of generators is supported by cast-iron bridges laid between the generators; this system leaving the upper sides of the generators free to be acted upon by the heat. The lower receiver, *c*, is kept full of water, and communicates with an upper receiver, *d*, which forms the steam-chest. The flame, after playing round the generators, and the receiver, *c*, passes round the lower side of the receiver, *d*, and through the flue, *e*, to the chimney. No provision appears to be made for the circulation of the water through the generators.

Fig. 54.



In the boiler awarded the prize, only one receiver of larger diameter was employed, partly filled with water, and surmounted with a vertical steam chest, to give more steam room. The dimensions and performance of that boiler were as follows:—

Length of receiver . . .	9·84 ft.
Diameter of do.	4·19 "
Length of the four lower generators	13·77 "
Length of the four upper do. .	10·66 "
Diameter of the generators .	1·31 "
Volume occupied by the water .	20 cb.ft.
Do. do. steam . .	7 "

The coal consumed during the trials was English, large, and of good quality. In the first experiment, the coal consumed per horse power per hour was 2·9 lbs., and the quantity of water evaporated by 1 lb. of coal, 8·06 lbs.

The power obtained (indicated ?) was 32 horses.

In the second experiment the consumption was reduced to 2·77 per horse power per hour. The trial lasted ten hours, the power obtained was 39 horses. It is obvious that the consumption per horse power depends upon the engine; but the water evaporated gives not a bad result.

The above information is obtained from the *Industrielle*, our worthy Parisian exchange.

It is proper for us here to state that we expected to find by careful perusal much that was valuable, interesting, and new in respect to the construction and principles of American locomotive boilers in Norris' Hand Book for Engineers; in this we have been disappointed, it is mostly a selection of foreign matter relating to English locomotives.

A Challenge to Rifle Makers.

The undersigned inventor and patentee of "Sharp's Breech-Loading Rifle," proposes to test his rifle against any other military arms in the world, not exceeding 9 lbs. in weight upon the following terms: A target six feet in diameter, to be placed at a distance of one half mile. The gun that puts the greatest number of balls into the target in thirty minutes, shall win the wager of one thousand dollars—the sum which each party shall stake upon the test.

The trial to take place at Washington, D. C., the first week in December next.

Christian Sharp.

Hartford, May 19th, 1852.

Iodine Rendered Soluble by Syrup of Orange Peel and Tanin.

M. Debauque mentions in the Journal de Pharmacie, of Antwerp, that he has found means of keeping iodine in a state of solution when added to mixtures in the form of tincture. The author uses for that purpose, syrup of orange peel, which answers the purpose perfectly. It was suspected that tanin was mainly instrumental in this result; and this was rendered evident by putting a few grains of tanin into a quantity of water to which tincture of iodine had been added, and in which the iodine had of course been precipitated. The addition of tanin caused the iodine to be immediately re-dissolved. Thus will the syrup of orange peel be advantageously added to mixtures containing tincture of iodine, and tanin to injections composed of water and the same tincture.—[London Lancet.

LITERARY NOTICES.

The Study of Words—This is the title of a little volume, by Trench, Professor of Divinity, in King's College, London, and published by Redfield, Clinton Hall, this city. We expected to find a dry but acute examination into the origin of words; we find, however, that it is acute but not dry; it is one of the most interesting books that we have read in a long time. In respect to the language of savage races, he takes the very position we have often assumed, in opposition to certain progressive but shallow philosophers, who have enunciated the doctrine that man commenced existence as a "wild man of the woods." These pseudo-philosophers put down language as one of the arts of life—an invention,—whereas it is an endowment, like the faculty of invention, without which no race of men could have progressed; they would, if this theory were true, be now like any race of brutes, the same throughout all generations. Trench, like Douglas, considers the savage not the primitive state of man, "but like a dead and withered leaf, torn violently away from the trunk of humanity." We predict for this book an extensive sale, as it throws a great deal of light upon many words of our language.

Littell's Living Age—This excellent work is for sale by Dewitt & Davenport, this city. It is published weekly, and contains the very cream of European literature. The last week's number contains a splendid scientific article from the Edinburgh New Philosophical Journal, on the Physical Constitution of the Sun, by M. Arago.

Christian Melodies—This is a neat volume, and one much required by every christian family. It is a selection of hymns and tunes designed for social and private worship, in the lecture room and the family circle, during the morning and evening hours devoted to sacred offerings. It is edited by George B. Cheever, D. D., and J. E. Sweetster. This is the second edition, and is published in a most respectable manner, and well bound, for 37 1-2 cents, by A. S. Barnes & Co., 51 John street, this city. Many of our readers, we know, will possess themselves of this volume.

The Angel Over the Right Shoulder.—This is the title of a beautiful work, by the author of "Sunny Side," and is published by W. F. Draper, of Andover, Mass. The book is very neatly printed, and what is of great interest and importance in its production, to us, is the announcement. "it is a specimen of printing from non-metallic types." It is an improvement which looks as if the Angel of Printing had been peeping over the shoulder of its author.

Godey's Lady's Book.—The June number of this old monthly serial has made its appearance, teeming with spirited original engravings, and over 100 pages letter-press. Long & Brother, agents, 43 Ann street. Published by L. Godey, Philadelphia; terms $3 per annum.

Hints on Dress and Beauty.—Fowlers & Wells have just issued another little book from the pen of Mrs. E. Oakes Smith, the title of which implies its contents. Price 25 cents.

Harry Racket Scapegrace—An exciting novel of 208 pages, well illustrated, recounting the fortunes and misfortunes of Henry Racket Scapegrace, has just issued from the press of H. Long & Brother, 43 Ann street; price 50 cents.

Kate Penrose—By Miss Hubback: Dewitt & Davenport publishers. This is a work of fiction, designed to inculcate sentiments of sterling morality and virtue.

"The Water Cure Journal," for June, abounds in interesting and useful information. It is a publication of genuine merit. Fowlers & Wells. N. Y. $1 per annum.

INVENTORS

Mechanics and Manufacturers

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Postmasters, being authorized agents for the Scientific American, will very generally attend to forwarding letters covering remittances.

MUNN & CO.,
Publishers of the Scientific American,
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N. B.—The public are particularly warned against paying money to Travelling Agents, as none are accredited from this office. The only safe way to obtain a paper is to remit to the publishers.

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